OCTOBER 1956

The American City

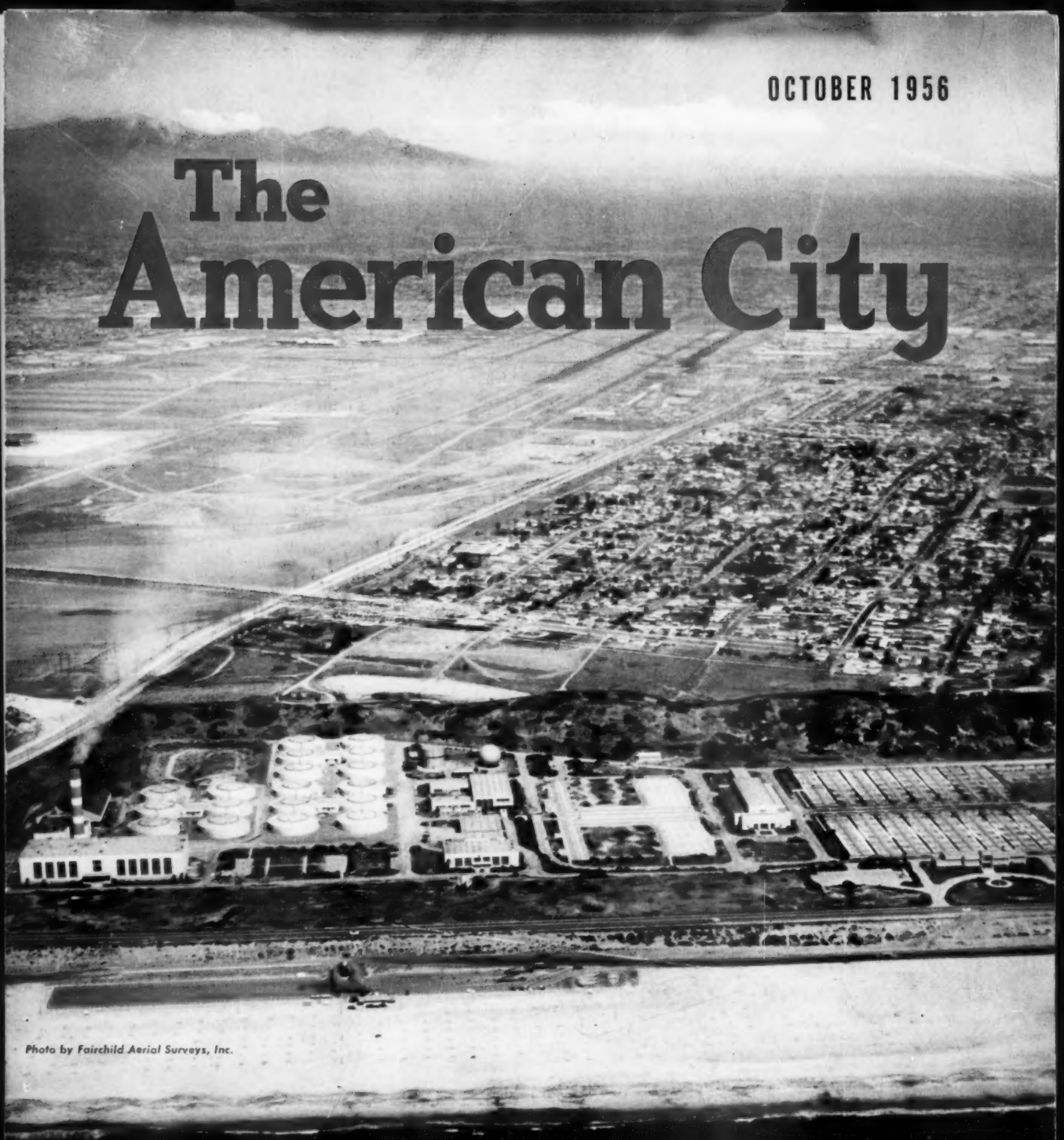

Photo by Fairchild Aerial Surveys, Inc.

Between Los Angeles and beautiful Santa Monica Bay lies the city's guardian of sanitation, its Hyperion sewage treatment plant. The nation's sanitary engineers, gathering here Oct. 8-11 for the annual meeting of the Federation of Sewage and Industrial Wastes Associations, will find it a dominant point of interest. See story on page 101.

What is the life of an Asphalt pavement?

By laying a new Texaco Sheet Asphalt wearing surface on 27-year-old Asphalt pavement on West North Avenue, Milwaukee gets many additional years of service. Lower photo shows this important thoroughfare after it was resurfaced with Texaco.

CONTRACTOR . . Badger Construction Company, Milwaukee

Milwaukee, Wisc. demonstrates an important advantage of Asphalt paving to municipal officials.

After it has given a city years of satisfactory service (27 years in the case of this Milwaukee street), an Asphalt pavement's life can be prolonged for many additional years speedily and economically.

Milwaukee added a new 3-inch Texaco Sheet Asphalt surface to its old Asphalt street. The new and the old surfaces knit together in a perfect, lasting bond. As a result, for the moderate cost of the new Texaco surface, the city has a substantially stronger pavement than before, which will be serving traffic for years to come.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer city officials a wide choice of street improvements, from heavy-duty plant-mixed asphalt paving down to inexpensive surface-treatments for light traffic. Helpful information concerning all of these types is supplied in two free booklets. You can secure copies without obligation from our nearest office.

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TEXACO

REG. T. M.

TEXACO ASPHALT

OCTOBER 1956

The American City

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The Cover Picture

The Los Angeles Hyperion sewage treatment plant, scheduled soon for enlargement, is receiving intensified study rarely, if ever, duplicated at any other similar plant. The cover picture, taken by Fairchild Aerial Surveys, Inc., Los Angeles, shows all but the final settling tanks and lagoons. We are indebted to Lyle A. Pardee, city engineer, and Milton Offner, secretary, Board of Public Works, for their help in making the photograph available.

The present plant, and the study of its proposed enlargements, will be one of the points of interest to sanitary engineers gathering in Los Angeles this month for the annual meeting of the Federation of Sewage and Industrial Wastes Associations.

An article on page 101 discusses the detailed study being made of the plant as it now operates and describes the proposed expansion program.

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"IT'S FUN TO PHONE"

"SO GLAD YOU CALLED"

"IT'S GOOD TO HEAR YOUR VOICE"

"THE DANCE WAS SWELL"

Just calling up can brighten your day

The telephone can be priceless in emergencies. It's the world's best helper when it comes to saving time, trips and trouble.

But one of its greatest uses has nothing to do with sudden need or calls to the grocer, dentist, hairdresser, electrician, department store, etc.

It's to bring friends and families together.

Just to be able to lift the receiver and talk to others is one of the joys of the telephone.

Isn't there some news you'd like to share with someone right now? And hasn't that someone some news you'd like to hear?

A telephone call that costs so little can do so much to brighten the day at both ends of the line.

BELL TELEPHONE SYSTEM

TUNE IN "TELEPHONE TIME"...the TV program with John Nesbitt's real life stories the whole family can enjoy together...every Sunday over CBS

Make Urbiculture an Issue

SOME way, out of the excitement and thunder that characterizes every election year, the welfare of cities and their urban areas rightfully should become an issue.

Call it "Urbiculture," if you wish, but with the welter of other issues that political parties present in their appeal for votes—the farm problem, labor, foreign affairs—the basic needs of running a city should be emphasized.

This issue requires the greatest attention at the state level, rather than national. From the national standpoint, urban areas have done fairly well. The last Congress, for example, combining the work of Republican administration and Democratic legislators, showed that it recognized urban areas and their importance to the nation. The big $33 billion road program earmarked about half for urban expressways; the little Water Pollution Control Act, parcels out $50 million to stimulate sewage treatment projects; the Federal Flood Insurance Act will give municipalities some relief from flood and tidal-wave disasters if they wish it; little municipalities will get some assistance from the Watershed and Flood Prevention Act in the development of reservoirs and dams at watershed headwaters.

However, on the state level, urban areas have their hardest battle. Restrictive legislation that artificially limits the power of bonding; unfair apportioning of gas tax and other motor-vehicle funds that coldly and intentionally bypasses urban needs, channelling them into rural roads rather than urban arteries; thoughtless legislation that forces water works and other utilities to change arbitrarily and at their own expense water mains and conduits whenever a road engineer calls for it; the unhappy fact that a rural voter has anywhere from six to ten times as much representation in state legislatures as the urban—all these should stimulate urban areas to make their cause an issue of real importance, and to send men to the state legislatures and to Congress who are well aware of these problems and have a desire to correct them.

The great danger that this persistently unfair treatment of urban areas presents is that it breeds disrespect for state governments and increases the tendency to "go to Washington" for corrective legislative action. For the good of the states, the urban areas, and the nation itself, the welfare of urban areas should be brought into focus and made an issue at every election—local, state, federal.

THE AMERICAN CITY

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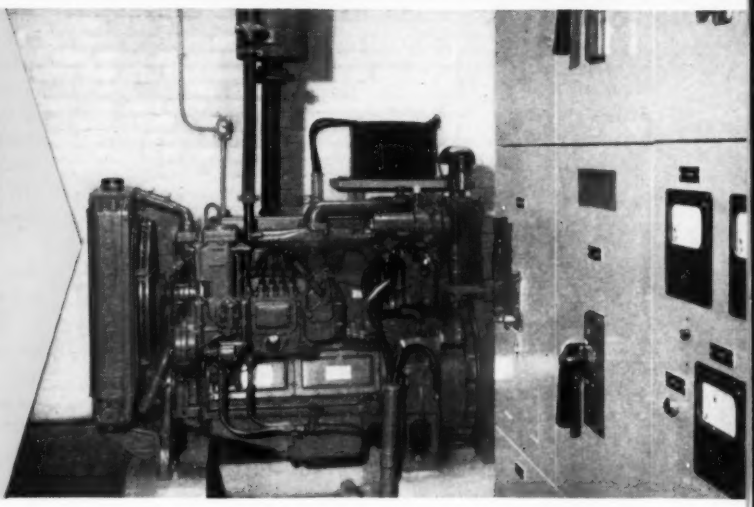
PROTECTION

FOR PORT WASHINGTON'S SEWAGE DISPOSAL PLANT



PORT WASHINGTON, N. Y., with a population of 25,000. started construction of its modern sewage disposal plant in 1951. It went into full operation in April, 1952. The system used is of the Bio-filtration type, and the plant consists of two primary clarifiers, two rapid rate trickling filters, two secondary clarifiers and primary and secondary digester tanks. Total capacity is 3,000,000 gallons per day.

Even before the plant was ready, the Port Washington Sewer District installed a Caterpillar D315 Electric Set as standby power. In four years the unit has twice been called on to supply power to the sewage plant. On one occasion a storm cut off power-line current for six hours. The other time a line break interrupted service for three hours. *But the flow of sewage through the plant never stopped.*

Ralph F. Thomas, Chief of Operations, says: "It's good insurance to keep the plant operating efficiently, with no interruption in the treatment during times of power failure."

Any municipality that neglects insuring the operation of its sewer and water systems with dependable standby power is risking a heavy loss—possibly costing far more than the standby unit. Electric Sets built by Caterpillar are specially designed for this use. They are self-regulating, require a minimum of maintenance, and they're available with either manual or automatic starting, ready to pick up the power load in a few seconds.

Your Caterpillar Dealer can help your engineers plan the right type of installation for your needs. He has CAT* Diesel Electric Sets in a full range of sizes up to 350 KW. And his parts and service facilities are at your disposal day or night.

Caterpillar Tractor Co., San Francisco, Calif.; Peoria, Ill., U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

MODERN DIESEL STANDBY POWER

Mail Bag

Capped Sewers Reduce Costs

Regarding the article by our Township Solicitor on the "capped sewer" policy (See "Courts Uphold 'Capped Sewer' Ordinance," August, p. 132), I thought you might be interested in this additional and, I believe, very significant point.

Sewer contractors tell us that installing sewers in virgin territory is about half as expensive as installing them in streets which have already been paved. Furthermore, where a municipality must install the sewers, the cost is again almost doubled by financing costs.

Most municipalities, when they do undertake large capital products of this nature, must necessarily float bond issues with retirement periods of twenty-five to thirty years and the interest cost, therefore, at going rates can add in this fashion between 75% and 100% to the actual construction costs.

One suggestion that may help other municipalities interested in undertaking a similar policy is the very important matter of making adequate provision for connecting homes to the capped sewers when trunklines are installed to make the street sewer usable. Not only should care be exercised to have the curb laterals placed in such a way as to permit the easiest and least expensive connection to the house line, but it is vital that the municipality through its own engineering services make detailed records as to the location of the curb laterals in terms of distance from manholes and in terms of depth. The municipality can then be provided with an accurate and complete as-built sewer plan for future reference by plumbers whom the householders employ to connect them to the sewer. Reliance should not be placed on the contractor himself for the keeping of these records.

CHARLES M. MELCHIOR
Township Manager
Broomall, Pa.

Supports High Standards

I should like to commend the City of Denver on the article on page 121 of the August issue. (See "Rx for a Budget Impasse.") I probably appreciate the article more because it supports my contention that, when given a choice in the matter, the taxpayers will show a preference for the retention of high standards of city service at a little higher cost rather than the holding of government costs stable in the face of constantly rising prices, and at the expense of lowering standards. It has been my experience that while the taxpayers rightly object to excessive or unnecessary spending, they are not averse to paying a little more so long as they understand the reasons and can see results.

A. W. TROUT, SR.
Commissioner of
Public Improvements
P. O. Box 99
Cheyenne, Wyo.

Colored Fluorescents For Downtown

Regarding the use of various colored fluorescent lamps for downtown street lighting I see no objections, although I frankly can't get too enthused about it.

There may be some merit in having the cool white lamps used during the summer, and changed to some of the warmer colors perhaps during the winter months. Also, colors might be changed for various festive occasions which the city might be celebrating.

E. B. KARNS, *Manager*
Outdoor Lighting Sales
Westinghouse Electric Corp.
Cleveland, Ohio

Phoenix Annexations

On page 17 of your August issue you list nine cities which, in 1955 (See "1955 a Banner Year for Annexations") annexed territory with more than 10,000 population. Phoenix should have been included in this list.

The source of your information, THE MUNICIPAL YEARBOOK: 1956, on page 43, shows that in 1955 Phoenix annexed 4.92 sq. mi., with a population of 14,376. This population is based on actual censuses made by employees of our fire department.

Thus far in 1956 Phoenix has annexed 7.44 sq. mi. of area with a population of 15,481.

The present area is 36.31 sq. mi. and the population is estimated at 171,794. This compares with a 1950 area of 17.10 sq. mi. and an official census population of 106,818.

Arizona cities may annex by petitions signed by the owners of more than half of the property, by assessed valuation. It is estimated that there are somewhat more people residing within the immediate unincorporated fringe areas than within the city limits. This year for the first time annexation is being promoted on a year-around basis.

RAY W. WILSON
City Manager
Phoenix, Ariz.

Memphis Utilities Are Good Business

In view of the tremendous amount of publicity that the Memphis Light, Gas and Water Division has received over the last few years, we are glad to see that classification as a good business venture by realistic businessmen also merits attention. (See "Memphis Power Plant a 'Sound Business Venture,'" September, p. 26.)

You will be interested to learn, however, that many of the questions raised by these businessmen already are being answered. For example, Memphis has agreed with the Tennessee Valley Authority on an interchange contract which will benefit both TVA and ourselves. Also, the astonishing pace at which the power load in Memphis has grown over the years makes us feel that the engineers' estimate as to size is none too optimistic.

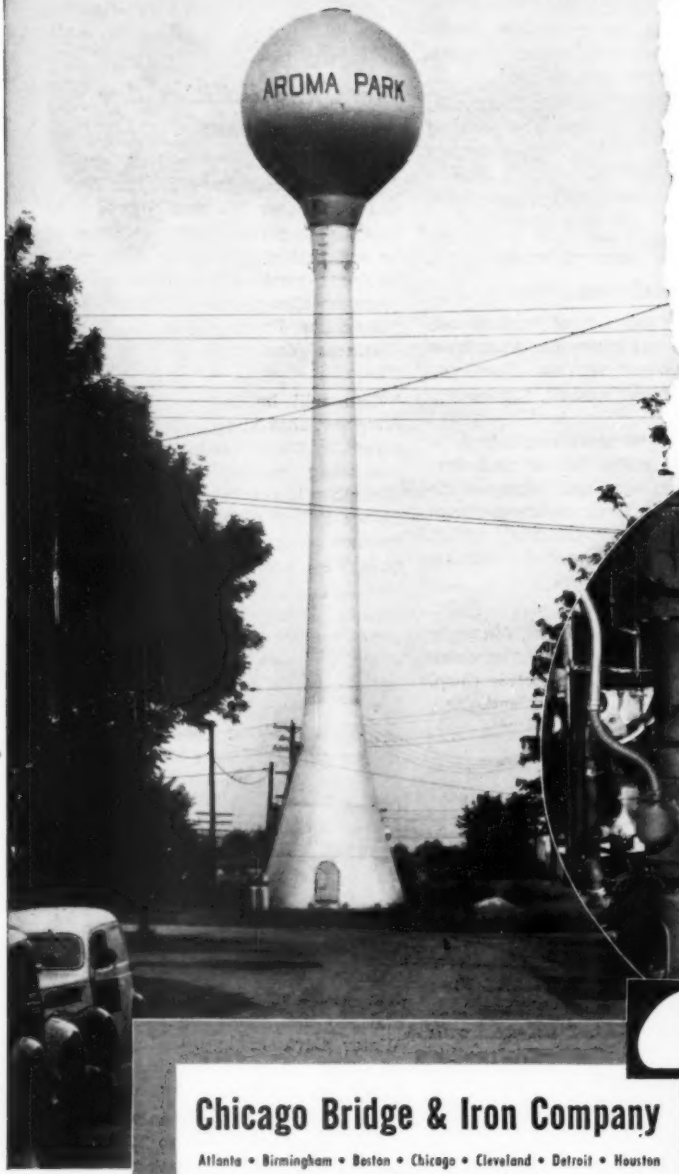
The problem of air-pollution control, also, is being solved. The plant will be equipped with 400-foot stacks; but in addition we are using cyclone furnaces with electrostatic precipitators which will reduce the fly-ash problem to a negligible quantity. Practically all the major equipment for the plant has been purchased and before long we will be at work on the main structure.

In addition, the Electric Division has just completed two new substations and is building a third. The Water Division is building a new pumping station, making it the fourth in the Memphis system.

Memphis has issued no securities of any kind since 1939 to finance enlargements of its light, gas and water utilities. Yet we have been able to keep ahead of the city's growth with the facilities necessary, without delay.

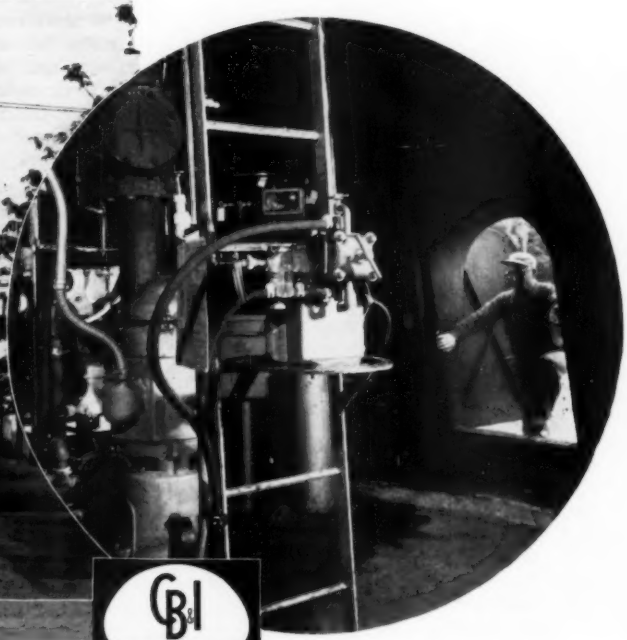
THOMAS H. ALLEN, *President*
Memphis Light, Gas and Water Div.
Memphis, Tenn.

Sound Engineering and Modern Design



The pleasing symmetry of a Horton Watersphere® is fast becoming a symbol of progress, utility and good water service. Combining sound engineering principles with modern design they are providing private and municipal water systems with a dependable gravity pressure water supply for domestic, commercial or emergency use.

Waterspheres are built in capacities to 250,000 gallons. Write our nearest office for further information.



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Los Angeles • New York • Philadelphia • Pittsburgh • Salt Lake City
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Plants in
BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

Above left: 50,000-gal. Horton Watersphere at Aroma Park, Ill.

Above: Interior view of Watersphere's base showing its use for housing water treating and pumping equipment.

Strandburg's "Do It Yourself" Water Department

By E. E. NELSON, Town Clerk, Strandburg, S. D.

THE manner in which the citizens of Strandburg, S. D., acquired their water system again bears out the statement that group action does pay off. For years, Strandburg residents suffered from inadequate water supplies. Finally, in 1950, a group of residents decided to install a private system.

That set off the spark. The Town Board immediately began investigations of a *community* water system and requested the citizens group to delay action pending completion of its studies.

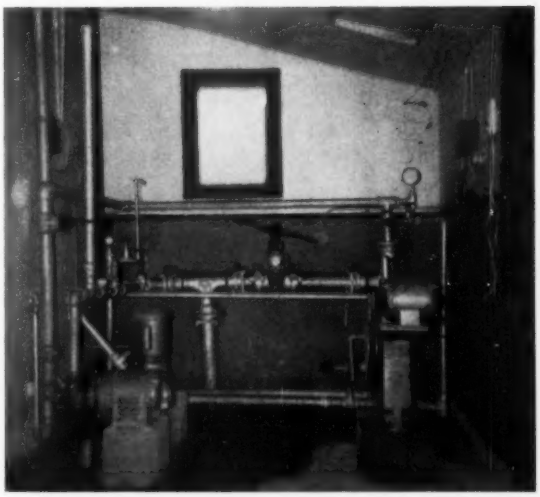
Volunteer Labor

After considerable study and a visit to a reliable distributor of water supply equipment, the Board received estimates of $1,200 for trenching and $5,700 for materials. Our treasury contained only $1,300 and our bond capacity was limited to $4,400. The problem of finances was eased when 30 responsible residents agreed to pay $60 each for connection fees and also donated five days of volunteer labor. The total of our bonding capacity, cash on hand and advance payments now came to $7,500, enough to construct a town water system provided the community did all its own work.

Next came the bond election. Many persons opposed the project, believing that it could not be done for the estimated cost of $6,900. However, the majority of voters were in favor of the project and the issue carried. The town sold the bonds and awarded contracts for trenching and necessary materials.

Now came the problem of construction. We could not afford construction contracts so turned it into a "do it yourself" program. Paul Peterson, an excellent machinist and plumber, but without formal technical training, engineered the project and acted as superintendent of construction. He had dreamt of a community water system for several years and did an excellent job in helping to make that dream come true. The job was completed at a cost slightly over $7,000 and included a 4-inch well with cylinder-type pump and sufficient mains to supply about 40 customers.

The water supply was adequate for domestic and commercial use but not for sprinkling purposes. In 1955 we spent another $2,000 to drill a 6-inch well, equipped it with a 50 gpm Peerless turbine pump and added several other items. Our system now consists of two wells, a 34,000-gallon reinforced concrete ground storage reservoir located in an elevated part of town, a 1,000-gallon pressure tank, a 100 gpm rotary pressure pump, 3,300 feet of 4-inch main, several fire hydrants, and 40 services, working together for efficiency.



The interior of the pump house (top right) shows the turbine pump and 1,000-gallon pressure tank. Although "home made," Strandburg's water system is automatic, requiring no full-time employees. Here is a view of the pressure pump and pipe connections to the reservoir.

Water is pumped from the wells to the reservoir at the rate of 3,000 gallons per hour and from the reservoir to the pressure tank at 6,000 gallons per hour. The reservoir provides from 10 to 15 pounds pressure at hydrants. In case of fire, a valve is opened, allowing the water to flow from the reservoir directly into the mains. The fire truck pumper can draw about 300 gpm from the hydrant.

The water works as such has no permanent employees. Members of the volunteer fire department take turns at making daily checks of the plant. Automatic pressure and float switches control the water level and pressure.

We have no water meters but charge a flat rate of $2 per month. This sum is sufficient to take care of maturing bonds and covers electric service and incidental expenses.

Each customer pays for his own connection and curb stop, costing about $120, including the $60 connection fee.

All plumbing materials and equipment was purchased from the Crane Company of Sioux Falls, S. D.

DO YOU REALLY NEED A "BIGGER" MOTOR GRADER THAN THE **CAT* NO. 212?**

Bigness isn't a matter of weight or horsepower. It's the *work capacity* of the machine.

The City of Lewisburg, Tennessee, found that out when they needed a new motor grader. Every competing make was given its chance, but the city bought a Caterpillar No. 212. The reason was that they discovered it could do every type of grading, ditching, backfilling and black-topping more economically than the other machines.

While it's the smallest and lowest-priced motor grader Caterpillar builds, the No. 212 has proved repeatedly that it can do the same jobs the bigger machines can do, at slightly slower speeds.

The 50 HP No. 212 gives you nearly all the advantages you get in the more powerful Cat Motor Graders. It's completely *built*—not merely assembled—by one responsible manufacturer, and it has typical Caterpillar strength and dependability. Some of its plus values are: tandem drive and leaning front wheels; mechanical power controls, easy to operate and positive-acting; easy, accurate steering; a full range of blade positions (you can move the blade from ditching to bank-sloping position in less than a minute, without leaving the platform); and full visibility of the job from the seat.

Low first cost, long work life and all-round job ability make the No. 212 an ideal buy for many communities. Your Caterpillar Dealer will gladly give you a demonstration, and you can count on him to protect your investment with reliable parts and service.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**NAME THE DATE . . .
YOUR DEALER
WILL DEMONSTRATE**

Some roads amounted to nothing more than a trail, impassable during bad weather. Cutting the road to proper width and alignment made up the first phase of the program.

Rubberized Asphalt Emulsion Ends Dirt Road Blues

By CHARLES W. BEAGLE
Borough Engineer
Director of Public Works
South Plainfield, N. J.

EVERY spring and during extended rainy periods, we could count on the 50 or more earth roads and streets in South Plainfield, N. J., to inspire their usual quota of caustic complaints.

Deep ruts and impassable conditions not only prevented normal travel, but deterred ambulances and fire trucks. Increased building activity along these streets put added pressure behind some type of improvement program, at a cost figure in keeping with the semirural area they served. Early in 1955 we adopted a program of surface treatment using a rubberized asphalt emulsion, designed to provide some what longer service life under these conditions of light traffic.

Preliminary Measures

Many of the roads were no more than trails, one car wide and extremely flat. We first staked out the road for proper alignment and width and removed all vegetation and topsoil. A Caterpillar No. 12 motor grader cut and windrowed the soil and a Case Model 50 tractor with a 1-yard bucket loaded it into the trucks. Four trucks hauled the material to various parks within the borough where it was used to enlarge the play areas.

Next came the location, sizing, and installation of culverts. We dug the culvert trenches with an 8-foot Ottawa Backhoe attachment mounted on the rear of the Case tractor. An independently operated dozer attachment on the front of the motor grader did the backfilling, minor grading and shaping.

The surface was then brought to proper grade and crown and compacted with an 8- to 12-ton Galion tandem roller. We standardized on a 30-foot width and 8-inch crown.

At this point, a member of the engineering staff examined the road to determine whether a select surface material was needed. In South Plainfield, the soil varies from a shale to a sandy loam. Some areas have clay. A 2-inch to 3-inch cover of ¾-inch road stone was applied and rolled wherever clay or shale pre-

Top, right.
Large pressure distributors applied the rubberized emulsified asphalt, placing as much as 7,000 gallons per eight-hour day.

Right.
The quick-breaking emulsion required an immediate application of stone.

Stone spreading and rolling operations followed the application of emulsion in five minute intervals.

Result — an all-weather road at a modest cost.

During 7 years of heavy traffic

Negligible amount spent on pavement maintenance

Cleveland's Chester Avenue extension shows how modern Asphalt construction can mean real service to a community. And how Asphalt paving can simplify a complex job.

Before paving started, 118 buildings on the right-of-way had to be razed. As a result, most of the road was constructed over highly diverse subgrade.

Here's how it was done. Basements of demolished buildings were filled with compacted material over which was laid a 6" granulated slag subbase. Then, a 4" Asphalt penetration macadam base was placed and surfaced with 4" of Asphaltic concrete.

"The Asphalt pavement on Chester Avenue (between E. 55th and E. 93rd Sts.) constructed in 1949 has stood up exceptionally well. Our maintenance on this section has been negligible." LOUIS L. DRASLER, Director of Public Service, City of Cleveland, Ohio.

Result? A road so durable nothing fazed it. Not the heaviest trucks. Not the buses. Not the daily traffic count of over 50,000. In 7 years the road has required a negligible amount of maintenance. And today, it is still in excellent condition.

What are the reasons for this durability? Asphalt pavement seals out damaging surface moisture . . . keeps the underlying base and foundation dry and firm. It isn't affected by de-icing salts. And this flexible pavement hugs its foundation. It adjusts itself to settlements and shifts. And most important—the modern Asphalt road is *tough*. WASHO Road Tests prove it.

Asphalt's lower first cost and maintenance savings enable the engineer to plan safer, wider streets on smaller budgets. They enable him to get the most out of every tax dollar appropriated.

Ribbons of velvet smoothness . . .
MODERN **ASPHALT** HIGHWAYS

THE ASPHALT INSTITUTE
Asphalt Institute Building
College Park, Maryland

dominated. The road was then opened to traffic for a short period to help compact the material.

On the basis of low bid, we awarded a contract to the Tar Asphalt Company of New Brunswick, N. J., to furnish and apply road oil. Prior to penetration, the grader touched up the road surface, filling the depressions and smoothing the surface without cutting through the hard-packed top layer. The sandy surfaces received a penetration of MC-1 and the more dense material MC-0. In some cases, we applied a mixture of the two grades of oil.

The contractor used tank and trailer-type trucks to apply the Colas, an asphalt emulsion containing a rubberized additive supplied by the Shell Oil Company, at a rate of 0.3 to 0.4 of a gallon per square yard. This was followed by a cover of 5/8-inch crushed stone spread at the rate of 15 to 20 pounds per square yard. The covering eliminates complaints of drivers having to travel over fresh oil and also retards the flow of emulsion when it is applied, thus retaining more on the crown of the road.

Curing time varied from a minimum of seven days to as long as six weeks.

Final Operation

After sufficient curing time, an inspector examined the road for weak points. A repair crew next patched holes with bituminous concrete type "A" or FABC-1, of 3/4-inch and 5/8-inch crushed stone, hand-sprayed with emulsified asphalt.

The next step was the application of the seal coat. The Somerset Tar and Asphalt Company of Hanover, N. J., received the contract for furnishing and applying the emulsion. Bids called for the application of emulsified asphalt, grade RS-1, with rubber additive according to the New Jersey State Highway Department specifications. The asphalt contains from 0.25% to 1% of natural rubber latex by weight.

Large distributors of 1,500- to 3,000-gallon capacity, applied the emulsion at the rate of 0.3 of a gallon per square yard. A second contract called for delivery and tail-gate spreading of stone. This operation immediately followed the application of the emulsion. The quick-breaking qualities of the emulsion, from 15 to 20 minutes, requires that the stone be applied and dragged in a very short period of time. We used between 20 to 22 pounds of stone per square yard of surface, and dragged it with a piece of chain-link fence. After rolling, the road was immediately opened to traffic.

Good Results

Results have been gratifying. The work done in 1955 survived a minimum of six freezing and thawing cycles during last winter, plus two heavy snowfalls, without material damage. The roads have the appearance of penetration macadam.

The cost is low. The single seal-coat road costs approximately 14.3 cents per square yard and double seal-coat jobs run about 21.6 cents per square yard for material. The addition of 3 inches of road stone applied prior to penetration brings the material costs to 39.3 cents per yard.

The emulsion is nontoxic, does not require heat, and does not give off vapor fumes. It may be applied to damp materials and damp surfaces.

We used 64,000 gallons of emulsion in 1955 and at this writing have completed over 6.5 miles of roads so far this year at a material cost of less than $28,000.

Julius Celentano, acting superintendent of Public Works, has charge of the program.

Steam Generator Serves Dual Purpose

THE thawing of frozen storm-sewer inlets presents a problem to most northern cities, and Bozeman, Mont., is no exception. However, M. E. Henderson, city manager of Bozeman, reports that newly purchased equipment has materially reduced the efforts required to keep the inlets open during winter months.

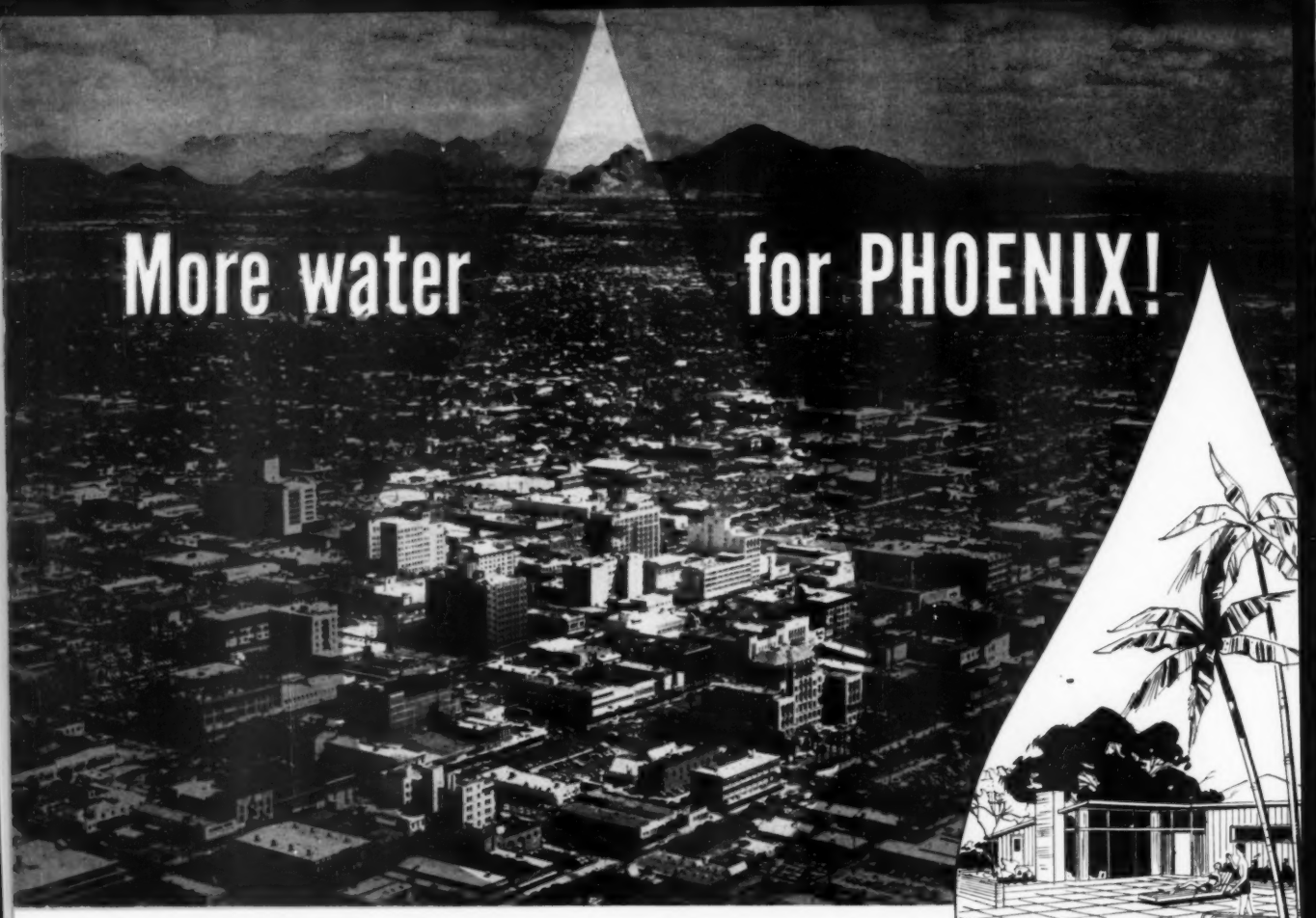
In the fall of 1955, the city purchased a Malsbary 250 steam cleaner to steam clean city equipment and to thaw out frozen storm-sewer inlets.

Continuous Steam Flow Needed

In the latter operation, it is necessary to have a relatively large volume of steam that can be kept in continuous flow for time required to complete the thawing job. Water for this steam is supplied by the tank truck that is used to tow the trailer-mounted steam generator.

Bozeman tried various thawing methods over the past years and has found the use of live steam the most satisfactory solution to the problem. Mr. Henderson states that experience in the first year of its use shows that the Malsbary steam generator does the job for which it was purchased—in an excellent manner.

The Malsbary 250 steam cleaner provides a large and continuous flow of steam at high pressure which effectively thaws a frozen storm sewer inlet on this Bozeman, Mont., street.



Another city *using* AMERICAN'S *reinforced concrete pressure pipe for water supply lines*

The City of Phoenix, Arizona is another of the rapidly growing cities of the Southwest which have faced tremendous water supply problems and have met them successfully. The population of Greater Phoenix has increased almost 50 per cent in the past five years. An annexation program is currently increasing the rapid expansion of the City of Phoenix which is one of the fastest growing cities in the nation.

During 1953 American Pipe and Construction Company, through Fisher Contracting Company, general contractors, supplied Phoenix with more than 37,000 feet of large diameter concrete pressure pipe for a line which increased the Phoenix primary feeder capacity from 100,000,000 MGD to 210,000,000 MGD. The pipe furnished was pre-stressed concrete cylinder pipe designed for the operating pressures established under specifications prepared by Yost & Gardner, consulting engineers for the City of Phoenix.

American has helped to meet the special problems faced by Phoenix water officials by designing and supplying reinforced concrete pressure pipe especially for conditions in the Phoenix area.

A recent merger with Hooper Concrete Pipe Company in Phoenix gives American another permanent plant from which to serve the cities of the Southwest.

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Fog emerging from a soil pipe is all right, but not from a downspout.

Crew members of the Versailles Board of Public Affairs ready fogging equipment in order to trap an outlaw sewer connection.

Fogger Detects Illegal Downspouts

By V. V. COTTRELL
Superintendent of Public Affairs
Versailles, Ohio

IF an insecticide fogger can be surprised, I would lay a small wager that the one we have in Versailles is the most astounded rig in the country. Instead of catching bugs with it, we use it to find downspouts illegally connected to the city sewer.

As everyone knows, these illegal downspouts are an expensive nuisance. They dump relatively unpolluted rain water into a sewer system designed to receive sanitary wastes, overloading the sewers, causing sewage to back up into basements, and creating problems of peak loads at the sewage treatment plant. Most cities have ordinances prohibiting the connections. The trick is to find them.

How We Do It

The method we have used came about through the helpful assistance of Professor Kenneth W. Cosens, Civil Engineering Department, Ohio State University; Professor E. Robert Baumann, Sanitary Engineering Department, Iowa State College; and Leonard Shure, chief sanitarian, Knox Chemical Company, Chicago, Ill. Professor Baumann, at the time, was research associate at the University of Illinois.

Versailles is a village of approximately 2,000 persons. Our sewers range from 8 to 15 inches in diameter. This method should work on larger sewers with proper adjustments. The procedure is as follows:

1. Flush a section of sewer to be tested with compressed air to free the sewer of gases and odors.
2. Place a soil-pipe test plug, or other plug of similar type, into the sewer flowing into the manhole to temporarily stop the flow.
3. Place another plug into the sewer leading from the manhole which will prevent the fog from escaping.
4. At the next downstream manhole, place another test plug with the long shaft cut off to permit free introduction of the fog through the hollow stem by means of the fog nozzle.
5. Locate air compressor, fogging oil, fog nozzle and all hose at this downstream manhole. Hook the fog nozzle up with twin hoses, the air going to the air compressor and the liquid line to the oil.
6. Introduce the fog into the sewer, holding the nozzle loosely in the hollow shaft, thereby preventing any excess build-up of pressure that would break the water seal in the trap.
7. Observe where the fog escapes. In less than five minutes, you will see it emerging from toilet vents, cistern overflows, and other legitimate surface drains—and also illegal connections like downspouts.

For our work, we used a Jaeger air compressor, Model 75, able to deliver 75 cubic feet of air per minute at 100 psi. To this, we connected Knox Chemical Company equipment—a Model 140B spray gun and 15 feet of twin-tube hose. The oil used was Knox deodorant base No. 467. The oil is free of odor and other harmful effects. Disinfectants and insecticides can be added and will in no way affect the character or operation of the oil.

The entire operation takes 15 minutes, or less, to test a full city block, and we have found as many as six illegal connections in such a section. Since doing this fogging work, we have greatly reduced storm water in our sewage-treatment plant after rains and have eliminated sewage back-ups into basements. From all angles, the experiment has proved itself to be a complete success.

Information Available

Since we did our work, we have found a great deal of interest expressed in it by the State Department of Health and nearby local communities. It is our thought that other communities could use it to advantage. We will be glad to give further information to any interested municipality. It is available from the office of V.V. Cottrell, superintendent of public affairs, Versailles, Ohio, and will be distributed upon request without charge.

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City-Hall Ceremonies for First Voters

By JOHN C. CORNELIUS
President
American Heritage Foundation

THE American Heritage Foundation proposes special ceremonies of fitting dignity for any citizen who reaches an age when he is permitted to vote. Furthermore, the Foundation stands ready to assist any city wanting to prepare such ceremonies.

The fact, now fairly-well documented, that more nonvoters come from the age group 21 to 30 than from any other age bracket, should be accepted as a challenge. Special ceremonies for First Voters should provide the inspiration that will start young citizens on the path of informed and conscientious voting.

Civic Responsibility

A community First Voter Program will help imbue young people with a lively sense of civic responsibility. They will discover what a rewarding experience it is to "work" at being good citizens and voting wisely in *every* election.

The American Heritage Foundation suggests that every mayor cooperate by encouraging the formation of a local committee to plan special community ceremonies. Suggested names for the event might be:

First Voters' Rally
"21" Party for First Voters
Coming-of-Voting-Age Party
Birthright Party.

The mayor can spearhead the organization of the Community Committee for First Voters, enlisting the cooperation of such groups as the League of Women Voters, The Junior Chamber of Commerce, various active labor groups, and similar organizations. Already, some cities have such programs. Denton, Texas, has one, sparked by Professor Olive White of the Texas State College for Women.

Wide Endorsement

Such a set of ceremonies has the endorsement of every national leader, including those of both political parties. Indications point to a reawakening of zeal for, and understanding of, American democracy, its rights, privileges, and its obligations. Active citizenship and civic responsibility have been, for centuries, a vital force in the building of nations. In ancient Greece, where democracy was nurtured and immortalized by its philosophers, Pericles wrote 400 years before the Christian era:

Fix your eyes upon the greatness of your country . . . and remember that her greatness was won by men with courage, with knowledge of their duty, and with a sense of honor in action.

The American Heritage Foundation stands ready to assist and welcomes inquiries from interested city officials. National Headquarters are at 11 W. 42nd St., New York 36, N. Y.

Future Population and Economic Decline Seen for Heart of New York Region

A SIGNIFICANT DECLINE in population, employment, and economic strength for the heart of the New York metropolitan area is predicted in a recent report by the Regional Plan Association of New York. The report, which is aimed at laying the basis for a metropolitan transportation plan, finds these specific prospects in store for the Manhattan Island of 1975:

1. **a 3% decline in population**
2. **a 10% decline in the employment**
3. **a smaller share of the region's shopping dollar.**

In discussing Manhattan's economic strength, the report notes that although population and income increased substantially throughout the region as a whole between 1948 and 1954, Manhattan's dollar-adjusted retail sales actually declined by 3% during that period. A continuing decrease in the island's share of the region's shopping dollar is to be expected in the next several decades. But despite the predicted declines, the Association notes optimistically that Manhattan's shopping areas are by no means doomed since they will continue to offer a greater number of stores with a larger selection of merchandise than even the largest suburban shopping centers.

Even in certain segments of amusement and cultural activities,

REPRESENTATIVE MUNICIPAL BOND ISSUES

August 22 to September 5, 1956

Date of Issue	*Municipality*		*Purpose*	*Average Maturity (Years)*	*Net Interest Cost or Basis (Per Cent)*
8/22/56	Juneau Co., Wis.	$ 110,000	Infirmary	5½	2.909 (basis)
8/22/56	Rocky River, Ohio	115,186.66	Improvement Special Assessment	6½	3.763 (basis)
8/23/56	Green, Ohio, Local School Dist.	380,000	Building	10	3.28 (basis)
8/27/56	Burlington, Iowa	450,000	Water Revenue	11⅝	3.365 (basis)
8/28/56	Chicago, Ill., Park Dist.	12,000,000	Park Improvement	10¾	3.15 (basis)
8/28/56	Greenburgh, N. Y., Hartsdale Public Parking Dist.	147,000	Public Parking	4¾	3.17 (basis)
8/28/56	Mayville (City), & Williamstown & Theresa (Towns), Wis., Jt. School Dist. No. 5	180,000	School	11½	3.24 (basis)
8/28/56	Monroeville, Pa.	480,000	General Obligation	15½	3.598 (basis)
8/28/56	Newton, Mass.	350,000	Water	5½	
		100,000	Sewer First Series	10½	
		1,200,000	Sewer Second Series	10½	
		500,000	Street Improvement	5½	2.57 (basis)
		300,000	School Building First Series	10½	
		118,000	School Building Second Series	10½	
8/30/56	Circle Pines, Minn.	24,000	Street Improvement	8	4.08 (basis)
8/30/56	Clintonville, Wis.	200,000	Corporate Purpose	11⅓	3.47 (basis)
9/ 5/56	Cook Co., Ill., Forest Preserve Dist.	1,000,000	Corporate Series C	5½	2.85644
9/ 5/56	Mansfield, Conn.	550,000	School	10	3.31 (basis)
9/ 5/56	Middlefield, Mass.	100,000	School Project	10½	3.38 (basis)
9/ 5/56	Wellesley, Mass.	450,000	School Project	9¾	2.51 (basis)
		200,000	Sewer Construction	5½	2.51

Compiled from *The Bond Buyer*

Manhattan stands a good chance of experiencing a downward trend in the coming years. As the report states, "to the extent that technological advances such as television lower the demand for such establishments as motion picture houses, there may be a further decline in certain cultural and amusement establishments."

Although Manhattan, the core of the 15,000,000-person region is seen in decline, the region as a whole is expected to continue to grow substantially. A 1975 regional population of 19.1 million persons (25% bigger than now is forecast). A 23% increase in employment is also seen. Although the New York area's growth is not likely to keep pace with the national rate of development, the region's strength as the administrative, financial, and management center of the nation is expected to become even stronger than at present.

Milwaukee Adopts Community Chest Wage Deduction Plan

BEGINNING with this month's Community Chest campaign, Milwaukee's city employees may take advantage of a payroll deduction plan which will allow them to spread their contribution to the Community Chest over one or more pay periods. The plan recently approved by the common council, was developed this year by City Comptroller Virgil H. Hurless and his deputy, John E. Kapula. Some 8,000 city workers are eligible to participate in it.

Labor-Saving Landscaper

WHEN it comes to landscaping operations, Salt Lake City's Park Superintendent, Warren L. White, has found a real labor saver. About a year ago his department purchased a York rock rake and has used it to construct a new 9-hole addition to the Bonneville golf course. His crews also use it to rebuild ball fields and to do other landscaping work.

The park system in Salt Lake City includes the airport, shadetree department, golf courses, and ball fields.

Chicago Adopts New City Planning Set-up

IN A MOVE designed to strengthen its local planning activities, Chicago's Board of Aldermen has made that city's planning staff directly responsible to Mayor Richard J. Daley by reconstituting it as a full-fledged executive department. At the same time, the Chicago Plan Commission, to which the planners had formerly been responsible, was given a back seat position as the Aldermen made the 15-man body an advisory board to the new city planning department. In these twin moves, the nation's second largest city has thus joined the growing number of cities that are placing the city planning function squarely in the mainstream of municipal administration.

The changes were enacted in ordinance form on July 12 by a nearly unanimous aldermanic vote. They will go into effect on January 1, 1957.

Heading the new planning department will be a commissioner of city planning who will direct the work of the professional planning staff. He will have the responsibility for (1) developing and maintaining Chicago's comprehensive plan, (2) reviewing and recommending amendments for the city zoning ordinance, (3) coordinating the preparation of the city's long-range capital improvement program among other duties. But like Chicago's public works, police, and other commissioners, he will be appointed by the mayor (with council approval) and report directly to the city's chief executive.

The department staff will be organized in five divisions. The General Plan Division will be responsible for the preparation and maintenance of the city's comprehensive plan.

The Zoning Division will have the job of keeping the zoning ordinance up to date, while the Capital Improvements Program Division will do staff work needed each year for this continuing program.

A research division will undertake the task of gathering and analyzing all information needed in planning. Finally, a coordination division will have the job of being sure that all improvement projects undertaken by other city departments and agencies are coordinated in the best interests of the city and its plan.

The latter division will handle coordinating functions now being administered by Chicago's Office of the Housing and Redevelopment Coordinator. This office will be disbanded in January when the new planning department begins operating.

Cities Lay Plans for UN Day

OCTOBER 24 has been designated officially, by President Eisenhower, as the day set aside for municipalities to observe and pay respect to the United Nations. Activities relating to UN Day are being accelerated by the United States Committee for the United Nations, under Ray Hickok, national chairman.

Most of the UN Day ceremonies are being patterned after recommendations in the Committee's publication, "Leader's Guide," that has been distributed in volume across the nation. Special bulletins for veterans' organizations, librarians, teachers, labor groups, and young people also are getting wide distribution.

UN Bookshelf

One of the major projects of the U. S. Committee this year is its "United Nations Bookshelf." A number of local UN Day committees plan to present this bookshelf to their public and school libraries. The "shelves" consist of four collections of books and pamphlets put together with the assistance of the Library of Congress, the Carnegie Endowment for International Peace, the Foreign Policy Association, and the United Nations Department of Public Information. The "shelves" have been priced at $10, $25, and $50, and

(Continued on page 23)

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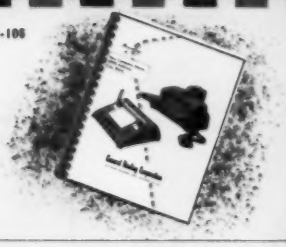

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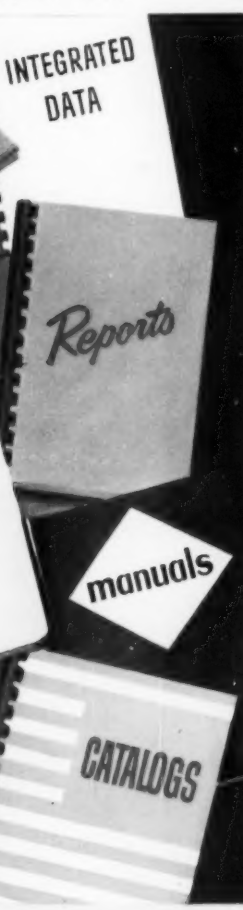

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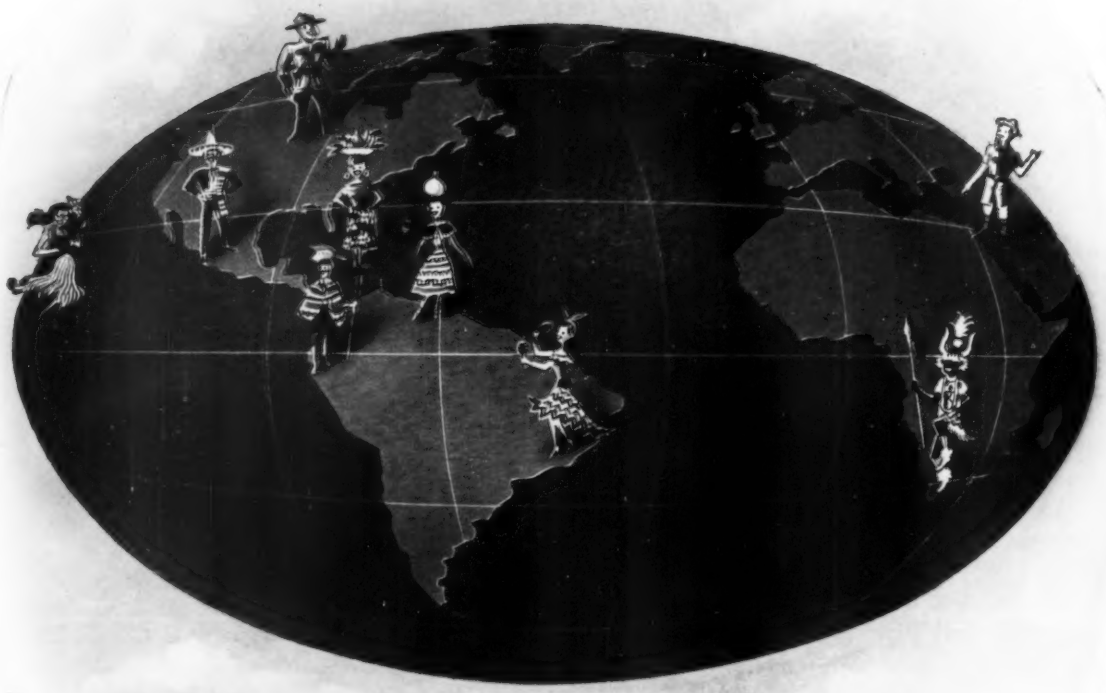

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(Continued from page 18)

are designed to interest a representative cross-section of the reading public. In addition, there is a special shelf designed for children up to the age of 12 years, consisting of five books, and also priced at $10.

Other Committee Projects

Another committee project that is attracting a substantial amount of attention is its city cookbook entitled, "Favorite Recipes from the United Nations." Recipes were gathered from foreign offices, embassies, and legations as well as delegations to the United Nations. All have been edited and kitchen-tested by the American Home Economics Association. The book sells for $1.50 per copy, if ordered individually, or $1 a copy if in quantities of 10 or more.

Other projects, such as UN tree plantings, international bazaars, folk festivals, model assemblies, store displays, are being promoted actively along with appropriate observance of UN Day in churches and synagogues.

Any city wanting more information about the UN Day observance, about the UN Bookshelf, the cookbook, or other UN projects, can obtain it from the United States Committee for the United Nations, 816 21st St., NW., Washington 6, D. C.

Canada Adopts U. S. Evacuation Policy

CANADA has adopted the United States' civil defense policy of evacuating major cities in the event of nuclear attack warning.

In accordance with this policy, 13 urban areas would be evacuated should enemy bombers be reported crossing the Distant Early Warning radar line in northern Canada. These areas, regarded as attractive targets for the enemy because of their size or strategic importance are Montreal, Toronto, Ottawa-Hull, Windsor, Niagara Falls, Halifax, Vancouver, Hamilton, Winnipeg, Edmonton, Quebec City, Saint John, N.B., and Victoria, B. C.

In announcing the Canadian government's decision, Health Minister Paul Martin, cabinet member responsible for civil defense, said:

Distance is, for the present at least, the only effective defense [and] all available experience and tests show that evacuation is feasible.

City Council Conducts Neighborhood Meetings

FOR A GRASS-ROOTS contact with the public, the Phoenix, Ariz., city council has scheduled a series of "Know Your City" neighborhood meetings. These bring local residents of the city together with city council members, department heads and division heads, so that they can have an on-the-spot discussion of local problems if needed. The city circulates handbills in the area where each meeting will be held, urging residents to bring their questions and neighborhood problems to the council meeting.

Planning Symposium Scheduled at University of Alabama

THE University of Alabama has scheduled a symposium on "Building Better Cities" for November 16-17 as part of its 125th anniversary celebration.

Experts in the field will participate in the two-day conference to review problems and techniques of planning for American cities. The featured speaker will be Administrator Albert Cole of the U. S. Housing and Home Finance Agency, who will discuss "Housing and Urban Renewal."

The symposium is the first of its kind to be held at the University. Further information may be obtained from Robert T. Daland, University of Alabama Bureau of Public Administration.

Federal Loans for Local Public Works Plans Gain Popularity

THE federal government's program of providing interest-free loans to states and municipalities to develop plans for needed public works is gaining wide acceptance.

According to a fiscal year-end report by the Community Facilities Administration, which has charge of the program, over 200 communities had filed a total of 262 applications as of June 30, 1955. The applications total more than $5,500,000 and represent estimated construction costs of almost $458,000,000. Fifty-one per cent of all applications are for sewer and water projects, 19% for schools and other educational facilities, 10% for public buildings, and the remainder for streets, recreation facilities, health centers, and other public facilities. The entire program has a revolving fund of $48,000,000 authorized by the Housing Act of 1954 and amended by the Housing Act of 1955.

Tree Census Highlights New York Tree Care Program

RECENTLY trees made news in New York City. Statisticians in the Department of Parks undertook a city and brought out the following:

New York City now has 2,282,000 trees under the care of its Parks Department. Of these, 1,746,000 of them are in parks, playgrounds, parkways and expressways, and 536,000 line city streets.

Limited by the allocation of funds, the Department can only afford a small staff of trained forestry personnel to care for its trees. The city has altogether 272 "climbers and pruners," which comes to one man for every 8,446 trees.

If it were possible for each climber and pruner to work individually rather than as one of a team and if each man were able to work 365 days a year by ignoring weather, holidays, or his own health, he would have to work on 23 trees each day in order to give each tree some annual care. Just to give each street tree some form of care every year, it would be necessary for each man to be assigned 1,970 trees.

The care and protection of 2,282,000 trees, no mean task in itself, is further complicated by other factors. Many varieties of trees do not thrive in gasoline fumes, soot, and other inconveniences of city living. Nature also took its toll in the form of blights, insects and diseases like the Dutch Elm Disease, hurricanes, and storms. The Parks Department has, at present, a huge backlog of dead, dying, and undesirable trees which would cost about $800,000 to remove.

Notwithstanding these obvious handicaps, the Department of Parks with the help of private citizens, organizations, and other government agencies, will continue to work for the beauty of New York by pursuing its tree-planting program.

Fast-growing city adopts flexible sanitary-fill program and gets extra benefits

Peak Refuse Loads Are No Problem

By C. M. RICE, *Director of Public Works, Bellaire, Texas*

IN TWO YEARS, the population of Bellaire has jumped 33%, from 18,000 to 24,000, and it still is growing. The boost has caused plenty of problems to all the municipal services except refuse disposal. Average collection rose from 60 tons per day two years ago to 80 tons today without creating any headaches.

Bellaire has a carefully operated sanitary landfill worked under the trench method. We have been able to sidestep any problems that the boosted refuse load might have produced by careful selection of equipment to meet changing needs.

Originally, Superintendent E. A. Eddins used a Caterpillar HT4 to take care of the daily collection of refuse. As the city's population grew, he realized that the time was approaching when this little tractor could not handle the assignment. So, on the recommendation of our department, the city council traded the HT4 for a new Caterpillar No. 6 Traxcavator last November.

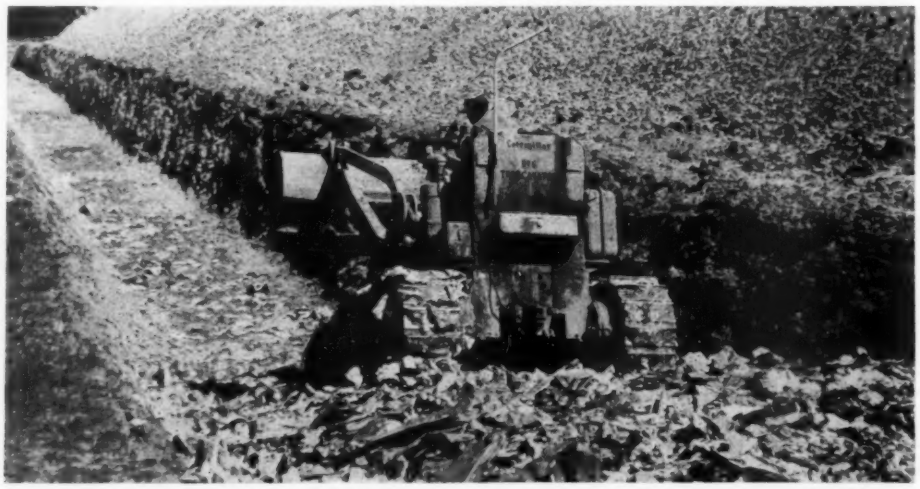
With this on the job on a 44-hour per week basis, Superintendent Eddins can spread the refuse, compact it, and cover it completely without difficulty. Bellaire will have to grow to double its present size before another machine will be needed.

Formerly open trucks hauled the trash to the landfill. Today, five Pak-Mor refuse trucks do the work. Of these, four have a capacity of 20 yards, and one, 16. The crews collect grass cuttings, leaves, tree limbs, and other trash along with the garbage in a single pickup. The city has appropriated 76 acres for the sanitary landfill. This should serve for at least 15 years. At the end of that time the filled material should have decomposed and have become inert enough to permit using the original portion for a new fill.

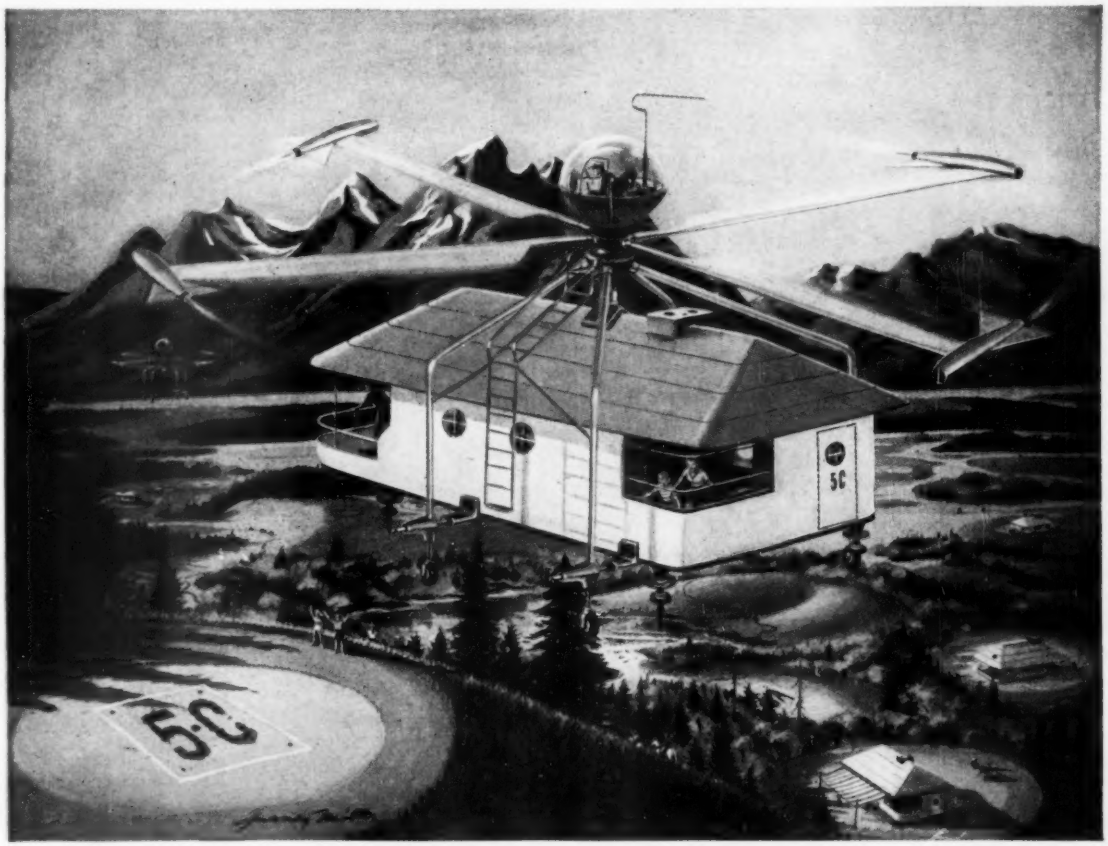
We hire a contractor to dig the trenches, keeping three open at all times. Two are classed "dry weather" trenches, and measure from 1,200 feet to 1,600 feet in length, 22 feet to 36 feet across at the top, 12 feet to 16 feet at the bottom, and 10 feet deep. The "wet weather" trench is 1,000 feet long, 36 feet wide at the top, 16 feet at the bottom, and 14 feet deep. Superintendent Eddins builds an all-weather road leading into it, and keeps a 3-inch Marlow pump handy to remove any collected water. The pump has a capacity of 300 gpm against a 15- to 20-foot head.

The Traxcavator spreads and compacts the refuse on a 20% grade. Excavated material is used for cover. At the end of the day, all of the haul is completely covered with 15 to 18 inches of earth.

As testimony of the effectiveness of the landfill, a Girl Scout and Boy Scout camping ground, and a police shooting range are located on the unfilled portion of the 76-acre site.



A contractor opens the original trench with a dragline, stockpiling the excavated material alongside.



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WE MAY MOVE HOUSES BY AIR!

Many incredible changes in the world of tomorrow. But even then, our water and gas will still be carried by that dependable public servant—the cast iron pipe being laid today.

Records show that cast iron mains installed over a hundred years ago are still serving effectively for more than seventy American water and gas utilities. Moreover, the modernized cast iron pipe of today . . . centrifugally cast and quality controlled . . . is even stronger, tougher, more serviceable.

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The Series 450 is available in 108″ and 132″ length.

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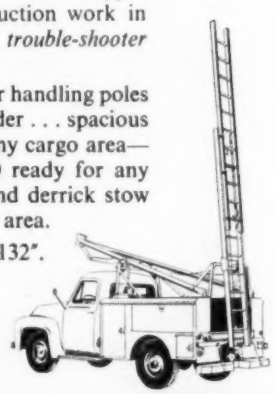

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Mickey Mouse Helps Keep New Haven Streets Clean

Mickey Mouse, ready for action, reminds all citizens that they can help keep New Haven streets clean.

NO longer restricted to comic-strip use, Walt Disney characters find useful employment in many other ways. In New Haven, Conn., Mickey Mouse has the job of promoting cleaner streets for the city.

A drawing of smiling "Mickey" wearing a street cleaner's uniform, carrying a broom over his shoulder and walking in a brisk forward movement has become the symbol of an anti-litter campaign launched by Mayor Richard C. Lee's Committee for a More Attractive Central Area.

"Mickey" appears frequently in newspaper advertisements, television spot announcements, and will soon be seen on 200 new wire litter baskets purchased by the city for use in the shopping area. Business and utility firms have been quick to use the "Mickey" postage meter stamps.

The symbol has captured the public attention of both young and old, and is doing an effective job.

At Mayor Lee's request, the special drawing was provided through the courtesy of Walt Disney Productions. The city may use the drawing to advertise the program for two years and may apply for continued use.

Vacant Lot Clearance

THE subject of weeds and debris on vacant lots is one of the headaches that confront all public works officials. A littered lot is more than unsightly. It reflects on the efficiency of the city, particularly its street and public works department, and is one of the forerunners leading to the eventual deterioration of a clean and progressive neighborhood.

Most cities have ordinances covering the maintenance of vacant lots. However, they are difficult to enforce. Some owners live out of the city, making them hard to reach; frequently the property is under litigation, and responsibility is hard to fix.

In Fort Worth, the Street Division cuts weeds and grass on all vacant lots that are not fenced, and on parkways and alleys without cost to the property owner. Not all may agree with this method, however, if the job needs to be done for the benefit of the city, this seems the most practical way of handling it.

For a number of years the city placed a nominal charge against the lots for this service, but the amount collected did not justify all the complaints received. Our practice was to wait until we had received money to cover mowing several lots in a particular area. Then a crew would be dispatched to the area and do all the cutting at once.

We found that in 85% of the cases, people living next to vacant lots would pay to have the weeds cut because the owner was not interested or could not be reached; for this reason the practice for charging for this work was discontinued.

The city has operated under the present system for a number of years, cutting lots without charge and scheduling the work in four different areas at one time. Each crew consists of a foreman, a truck, a power mower, three horse-drawn mowers, and four laborers. The budget for the work is approximately $35,000 per year which is paid out of a general fund.

These four crews cover the city twice each summer —sometimes a particular area is covered three times— cutting the grass only; they do not haul it away. The project operates from the first of June to about the 15th of September. During the summer months, when weeds and grass dry out and create a fire hazard, adjacent property owners often cooperate by raking the grass and setting it on fire. In other cases they will set it on fire without raking, after first notifying the Fire Department. The department sends a truck with equipment to stand by until the lot is burned off.

A number of years ago, Fort Worth attempted to add the cost of cutting weeds on vacant lots to tax statements but owing to the extra cost and work involved and the fact that very few people paid the item because of some question about its legality, this practice was soon discontinued.

In many areas of our city, neighbors adjacent to vacant lots have assumed the responsibility of keeping the lots in presentable condition. They have established playgrounds for children, have planted gardens, and have sodded and maintained the lot along with their own yards. Often they do this without the consent of the owner.

The matter of mowing vacant lots and caring for their upkeep appears to offer an opportunity for clubs or civic organizations. In many cases, these lots are owned by old people or widows, often neither physically nor financially able to do such work. On the other hand, older men in a semiretirement status still physically able to work would be happy to do this work for a reasonable amount. In sponsoring such a project, the organization giving financial assistance would thereby help older people to secure employment and also would help those financially unable to keep the lots clean. The city also would benefit.

H. H. HESTER
Street Superintendent
Fort Worth, Texas

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MODERNIZED **cast iron**

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...still not enough!

No secret to you that water is America's No. 1 Problem... that rainfall is largely wasted, unevenly distributed or polluted.

But does the public know it?

It's important that the great mass of the American people learn the facts. We're helping there.

Month after month our national advertising stresses the need for long range planning of water facilities; public support for realistic water rates; necessary water works financing; conservation by homeowner and industry.

Our aim... like yours... is to alert the public to the growing seriousness of water shortages... enlist their cooperation so that we—and our children—will be assured of a plentiful supply of water for all our needs.

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Over a hundred years ago cast iron pipe mains were laid by more than 70 American utilities. They're still working efficiently.

Here's proof of cast iron pipe's dependability and longevity... its savings in maintenance costs and tax dollars.

Today's modernized cast iron pipe, centrifugally cast for greater strength and uniformity, is even more durable. Where needed, it can be cement-lined for sustained carrying capacity through generations of hard use.

When you specify pipe for your water system, remember: no other pipe can match cast iron's *proved* record of performance. It serves for centuries.

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3, Illinois.

This rugged old cast iron water main, laid 125 years ago, is serving and saving tax dollars for the citizens of Detroit, Michigan.

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pipe FOR MODERN WATER WORKS

Prefab Centers End Nashville's Indoor Play Area Needs

By JACK SPORE, *Superintendent of Recreation*

Nashville Recreation Department

INEXPENSIVE and easy-to-construct Quonset buildings are helping Nashville, Tenn., break through the financial barriers that have prevented the city from constructing a series of much needed neighborhood recreation centers. Now, after an experimental beginning in 1953, there are five of the buildings on Nashville playgrounds, and more are being planned at a rate of two or three each year.

The plans that we in the Nashville Recreation Department worked out for the first building and which we have modified somewhat since, have proved to be ideally suited to the year-round needs of our department. Here are some of the advantages that we see in using these prefabricated buildings:

1. ***Quonset-type centers are economical.*** Cost of the latest ran about $4.90 per square foot (with a square footage of 6,525) as compared to estimates that ran approximately $8.50 per square foot for the same size building made of other materials.

2. ***Maintenance is very low.*** Except for the usual plumbing and electrical maintenance, the only upkeep necessary is a biannual painting.

3. ***Centers are about as "vandal-proof" as any recreation building could be.*** Of course, no building in these times is completely safe from vandals, but the thick, corrugated steel sides discourage vandalism and are indestructible to almost everything short of blow torch, steel drill, or dynamite.

4. ***Heating costs are low.*** The curved ceiling eliminates much wasted space, and builders have found that the quonsets may be well-insulated throughout.

5. ***Buildings are attractive, both inside and out.*** The outside of the Nashville centers have been painted a pleasant cream, green and brown, while the inside is done in soft pastels. In addition, there are dormer windows on each steel side and plenty of window space in the ends.

Nashville's Quonset centers have progressed steadily since the first one was built in 1953. The idea of quonsets was born of necessity. We needed centers to further our year-round program, but had the usual problem of insufficient funds for the size building we wanted.

We had a quonset-type maintenance shop that had the space and was practical, but frankly, wasn't much to look at from the outside. I believed, however, that we might brighten up the outside considerably and make a satisfactory center. Consequently, I approached the City Board of Park Commissioners with the idea. The board authorized me to make a study; I had several meetings with a local contractor, J. E. Crain, and the first building began to materialize.

Erected at McFerrin Park in northeast Nashville, the first building was 42 feet by 60 feet in size, cost $14,500, and took only 61 days to complete.

Gymnasium (top) in East Park Community Center is 80 feet long and 40 feet wide. It is used for basketball, paddle tennis, and other indoor athletic games, as well as for dances and meetings. (Above) Entrance view of the Community Center, which is 120 feet long and 42 feet wide. Second floor room is used for meetings of community organizations.

The building included a recreation room, office, rest room and some storage space. We were just experimenting with this design and we soon found features that were lacking in this first building.

The next one was at Eastland Playground and was enlarged to 42 feet by 100 feet, included a small gym, office, rest rooms, and storage space on the first floor and a club room upstairs. The cost was $32,500. This was better, but not yet perfect. More ceiling space was needed, presenting a problem since the pre-fabricated corrugated roofs (turned out by Stran-Steel Corp. of Detroit) had a maximum width of 42 feet.

Therefore, contractors built the next two buildings at East and Douglas Parks, on a five-run height of 8-inch concrete blocks, giving plenty of additional ceiling room. They also added 20 feet on the length, making it 42 feet by 120 feet. Finally, we had a building that met the most practical standards. For $39,000 ($4.90 per square foot), this building includes a gym floor approximately 80 feet by 40 feet, a quiet and table-game room, office, rest rooms and storage space downstairs and an upstairs club room with a kitchen.

About the only change we plan in future buildings is installation of wooden floors since the concrete floors won't hold paint and sometimes get slick and dangerous when dusty. We feel that we've really found a practical, low-cost building now.

What's the real story on rubber alloys in asphalt hot mixes?

The real story on alloying asphalt with rubber for use in hot mixes, as we see it, is this:

1. Asphalt is a good road building material. But just as metals are alloyed to meet certain of today's needs, so can asphalt be improved with rubber.

2. Experiments with rubber for roads stretch back over three decades. Through the years much data have been accumulated. With these data and certain laboratory tests, we can prove that asphalt is definitely improved by rubberizing.

3. Although no rubberized road has been down long enough to prove our case conclusively, we can cite a number of installations where some improvements have been fully verified and better over-all durability is strongly indicated.

4. Recent years have seen the development of improved rubberizers, foremost of which is RUBARITE. RUBARITE is a powder of synthetic rubber combined with particles of a special carrier. It was developed after years of experimentation and proved in hundreds of laboratory and road tests to be more effective than other types and forms of rubber in improving asphalt.

5. Today, there are some 1,100 miles of rubberized roads in use. These are the result of improvements such as RUBARITE and the fact that tests to date have been successful enough to convince a number of progressive engineers and contractors that, at the minimum, rubberizing will fully justify its added cost.

Well, that's the story. We feel it's strong enough, at least, to warrant further investigation of RUBARITE. If you agree, feel free to write for the booklet, "Bitumen Rubberizers," plus other details and samples. Address: Rubarite, Incorporated, 1702 Philtower Building, Tulsa, Oklahoma.

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240 Progressive Communities give their taxpayers a helping hand

In recent years these 240 cities and towns have cast their votes for Municipally owned and controlled fire alarm systems. They have installed brand new coded telegraph systems or made substantial replacement of existing ones. In addition, 1800 other cities and towns are safely protected by coded systems with similar features.

The Fire Chief who recommends this system gives his community — and the taxpayers — a two-way saving . . .

- Loss of life and property damage are decreased because the Gamewell system gives *fast, positive* alarms.
- Reduction of insurance rates by upgrading Fire Underwriters' classification saves substantial sums for property owners.

You can bring these same advantages to your community. For the full story on safe, sure alarms with a Municipal Fire Alarm System, ask us about a free survey. And for new ideas on how to present this story to other people in your community, write for the free booklet: "Conversation or Organization".

Remember — a Gamewell System is FIRST when Seconds Count!

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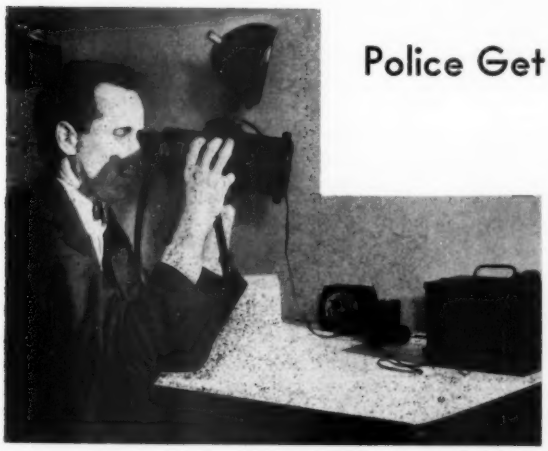


Sgt. V. G. McNett of the Syracuse Police Crime Laboratory sights through the Snooperscope plugged into a portable power source.

Police Get Snooperscope

THE Syracuse (N. Y.) Police Department is the first to use the Snooperscope, which permits policemen to see in darkness without being seen. Purchased from the Navy, the electronically operated Snooperscope was adapted for city police use with the help of lighting engineers at R. E. Dietz Company, Syracuse.

The new equipment, says Laboratory Director Louis A. Waters, operates by throwing out infra red light rays and picking up the images by electronic means. It is used by Syracuse police for looking down dark alleys and for stake-outs at warehouses.

The Navy used the Snooperscope to spot enemy submarines at night; the Army used similar models on front lines to detect infiltrations. Dietz engineers have made it more practical for police use with effective viewing from a few feet up to 250 yards.

Responded to 1,204 Alarms

CHICAGO Fire Department performance records show that Truck Company No. 11 last year covered 2,357 miles in responding to 1,204 alarms, 751 of which required 352 hours or forty-four 8-hour days of actual fire-fighting activity.

The Four Wheel Drive aerial ladder truck used by Truck Company No. 11 during 1955 is being replaced at the new station by one of seven new aerial ladder trucks which the Chicago Fire Department recently purchased from FWD. The 85-foot aerial ladder is spring-hoist operated. Chicago has a fleet of 25 Four Wheel Drive aerial ladder trucks.

At the right, Alderman William H. Harvey (left) congratulates Fire Commissioner Anthony J. Mullaney on the opening of the new station for Truck Company No. 11. Captain Grant Chaney is on the truck platform.

Privacy in Radio Talking

AN electronic "ear," deaf to all but a single electronic tone, permits three progressive degrees of privacy from a "party-line" system through a "private-line" system.

For police and fire departments the use of the new tones and electronic ears reduce strain and confusion and permits selective dispatching. Radio cars with electronic ears added to the receivers can be divided into groups. The "ears" in each group would hear a different tone. The dispatcher talks with an individual by pushing the button for his group. Only the drivers in that group hear the dispatcher's call, and when the called driver replies, the other receivers in the group automatically drop out of the ensuing conversation.

Carrying this one step further, adding an electronic ear to the dispatcher's receiver and tone generators to the car transmitters, permits a driver to call the dispatcher without being heard by any of the other drivers.

The third step, or "private-line" method of using the tones and ears is selective calling. For this method, the receivers in each of the radio-cars has an electronic ear capable of hearing a different combination of tones. The dispatcher calls any one individual driver privately, just as you dial a telephone number.

Civil Defense

The electronic ear and tone generator induced the General Electric Company to produce a specialized FM radio receiver for civil defense. The ear keeps it silent until the proper electronic tone is received from CD headquarters. These receivers can be installed at dispatching headquarters of agencies involved in civil defense, including police and fire departments, power companies, hospitals, etc.

The tone-operated switch in the radio receiver may, when the proper tone is received, simultaneously sound air raid sirens, and control lights by pushbutton from CD headquarters. In fact, an electronic tone system can control electric motors and obtain meter readings from distant points. Water levels can be taken by an operator miles away. Valves and gates can be controlled by an operator at headquarters.

Informative Catalogs - Yours For The Asking!

To obtain any of the following catalogs, write directly to the manufacturers or use the Post Card on the insert following Page 52

A Practical Sewage Plant for the Small Community

289 The smallest community can get "big city" sewage treatment economically with the Lakeside Spiragester. This self-contained plant places a Lakeside Spirafio clarifier over a digestion tank, combining the simplicity of an Imhoff tank with added flexibility and control. It is easy to operate and economical to maintain. For *Bulletin No.* 135, write LAKESIDE ENGINEERING CORP., 222 W. ADAMS ST., CHICAGO 6, ILL.

Street Sweepers for Rent

290 Smaller communities don't have to stretch their budgets in order to get the benfits of modern, mechanized street sweeping. With the new Wayne rental plan you can have a power sweeper without capital investment. Labor savings are said to cover all rental costs. For a *Question and Answer* folder containing full facts, write the WAYNE MFG. CO., 1219 LEXINGTON ST., POMONA, CALIF.

Protects Swimming Pools from Rust, Peeling

291 Whether the swimming pools in your community are of steel or concrete, you can keep them clean and attractive with a Parlon-based finish. These colorful coatings protect against rust, peeling and powdering, and hold down pool maintenance and operating costs. They are available from the HERCULES POWDER CO., 997 MARKET ST., WILMINGTON 99, DEL.

Water and Sewage Aeration Simplified

292 This economical aerator-mixer, Aer-O-Mix, is quickly installed in your water or sewage treatment plant, indoors or out, and operates without a compressor, diffuser plates or an air piping system. It is fully described and illustrated in literature from VOGT MFG. CO., INC., P. O. BOX 922, LOUISVILLE 1, KY.

Sewer Joint Compounds

293 Three new sewer joint compounds —all root-proof, infiltration-proof and corrosion-resistant—are offered by K. T. SNYDER CO., 3730 GRIGGS RD., HOUSTON 21, TEX. Root-Seal, a hot-poured plastic-base compound, provides for flexible, root-proof joints in bell-and-spigot, clay or concrete pipe. A ready-mixed, cold applied compound, GS-702, provides tight joints in bell-and-spigot, and tongue-and-groove pipe. GS-703, a hot-poured asphaltic-base compound is offered for bell-and-spigot, clay or concrete pipe. Details on request.

Ends Salt-Slush Corrosion

294 You can end salt-slush corrosion quickly and economically by the addition of Banox to your salt. Banox is easy to use, and will not damage concrete, blacktop or brick pavements. It is described in *Stop, Look and Save with Banox*, a new folder from CALGON, INC., HAGAN BLDG., PITTSBURGH 30, PA.

Steam Cleaner Cuts Maintenance Costs

295 Cities can use the Hypressure Jenny steam cleaner to clean traffic signs, painted curbing, trucks and cars; to sanitize and deodorize garbage cans and refuse trucks; to clean tunnels and walls; and to thaw frozen pipe, hydrants and culverts. The portable machine goes anywhere and is safe and easy to use. It is fully described in literature from HYPRESSURE JENNY DIV., HOMESTEAD VALVE MFG. CO., P. O. BOX 46, CORAOPOLIS, PA.

New Tractor Dozer

296 All of your city's heavy-dozing, land-clearing and push-loading projects will gain a new simplicity with a Michigan tractor dozer on the job. This efficient unit will doze 2¾ cubic yards per pass, and travels at speeds up to 27 mph. Its turbo-charged diesel engine develops 165 hp, with maximum rimpull of 28,000 pounds. Write CLARK EQUIPMENT CO., CONSTRUCTION MACHINERY DIV., 2495 PIPESTONE RD., BENTON HARBOR 38, MICH.

Street-Name Signs That Last

297 Street-name signs and other traffic signs constructed of porcelain enamel won't fade or rust and are completely dependable in any climate. Ferro signs are made of permanent porcelain enamel fused on quality steel. They offer 24-hour visibility, regardless of weather conditions. Write FERRO ENAMELING CO., 1100 FIFTY-SEVENTH AVE., OAKLAND 21, CALIF.

Pneumatic Concrete Repairs

298 Shot-Crete your concrete repairs with the new True Gun-All wet-mix machine. This pneumatic mortar gun will put in place up to four cubic yards of concrete per hour. It operates without a concrete mixer, and will handle mortar of almost any moisture content. Write TRUE GUN-ALL EQUIPMENT CORP., P. O. BOX 2526, TULSA, OKLA.

Portable Water Pump

299 Weighing only 85 pounds, the new Homelite Model 36 S2 centrifugal pump is easily carried from one location to another, and will handle any water problem—from seepage to volume pumping. The 2-inch, self-priming unit operates at slow speed with low noise level, and has a capacity of 9,000 gph. It is discussed in detail in literature from HOMELITE, 109 RIVERDALE AVE., PORT CHESTER, N. Y.

Street-Lighting Standards

300 High-strength, low-alloy steels go into the making of a Kerrigan street-lighting standard. This sturdy construction is unaffected by strong winds and heavy storms, and is well able to resist the costly effects of corrosion. Further details are contained in a new *Lighting Standard Catalog* from KERRIGAN IRON WORKS, NASHVILLE, TENN.

Speeds "Cold Weather" Concrete Construction

301 When temperatures fall to 50° F or below, add Solvay calcium chloride to your concrete mix, advises the SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP., 61 BROADWAY, NEW YORK 6, N. Y. Calcium chloride improves winter street construction by lowering the freezing point of your concrete. It speeds finishing and enables you to remove forms earlier. Two informative new booklets will be furnished on request.

Locating Trouble in Pumps

302 Do you have a "sick pump" somewhere in your city's water, sewage treatment or power plant? Locating trouble in rotary, centrifugal and steam pumps is easy when a specialist does the job. The Worthington Corp. has 114 years' experience in curing pump troubles—from failure to deliver water to the loss of capacity after starting. For full details, get *Bulletin PC-508 P* from WORTHINGTON CORP., MERCHANDISING SALES DEPT., HARRISON, N. J.

Easier Snow Removal at Lower Cost

303 Removing snow from city streets is a fast, easy and economical operation when you're working with a Wausau snow plow. Wausau plows are available to fit any truck—from ½ to 15 tons—and for motor graders, wheel tractors and many special motive power applications, as well. They are fully described in literature from WAUSAU IRON WORKS, INC., WAUSAU, WIS.

Equipment for Water, Sewer, and Gas Lines

304 *Catalog No.* 26W describes and illustrates a full line of dependable equipment for your city's water, gas and sewer pipelines. Featured are lead melting furnaces, asbestos joint runners, M-D cut-in connections for sewers, and pipe cutters. Also a calking tool outfit, leak detectors, and Tapax manhole cushions. Write JOSEPH G. POLLARD CO., INC., NEW HYDE PARK, N. Y.

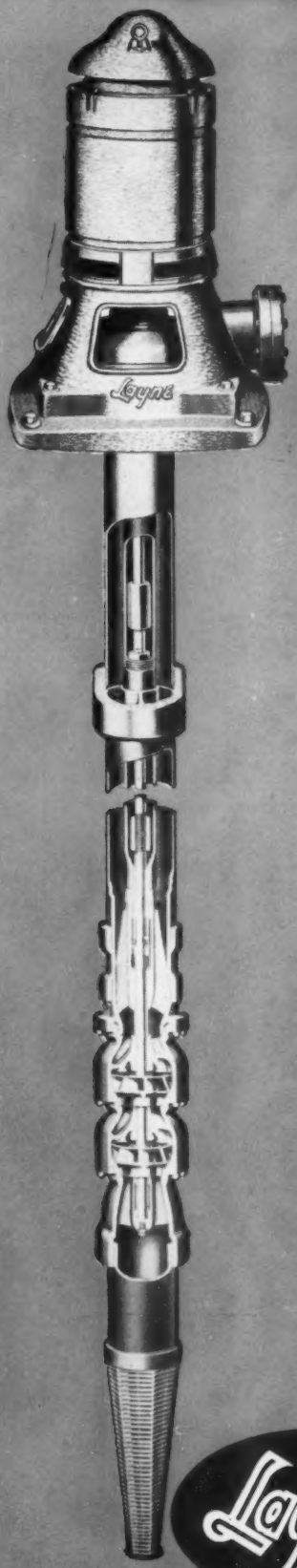
Police Motorcycles

305 One of the most effective ways to patrol the streets and highways in your community is with police officers mounted on Harley Davidson Solo motorcycles. The speed and maneuverability of these units enables an officer to handle every traffic situation on-the-spot. Get further details from HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS.

Drafting Machine

306 Here is a drafting machine for city engineers and draftsmen that combines all of the working features of a T-square, protractor, and various scales and triangles in one efficient unit. For a free, illustrated brochure describing the Vemco drafting machine, write V. & E. MFG. CO., DEPT. A-2, P. O. BOX 950-M, PASADENA, CALIF.

(Please turn to page 38 for more Bulletins)



There are Many Reasons for World Leadership of...

Layne

VERTICAL TURBINE PUMPS

Tested and proved in thousands of installations of all types, the world-wide leadership of Layne pumps has led the field for one overall reason—PERFORMANCE . . . under all kinds of operating conditions.

That envied, but never duplicated, performance record has been made for many reasons. These are a few:

1. Complete and undivided manufacturing responsibility: Every part of every Layne pump is manufactured in the Layne factory to Layne high standards.
2. Concentration on one make: A lifetime of experience is behind every Layne pump . . . and that accumulated "know how" is focused on one pump alone.
3. Proven design: The basic design of a Layne pump has been job tested under every conceivable operating condition. And that design is converted into a finished unit through a series of highly specialized and quality-controlled factory operations.

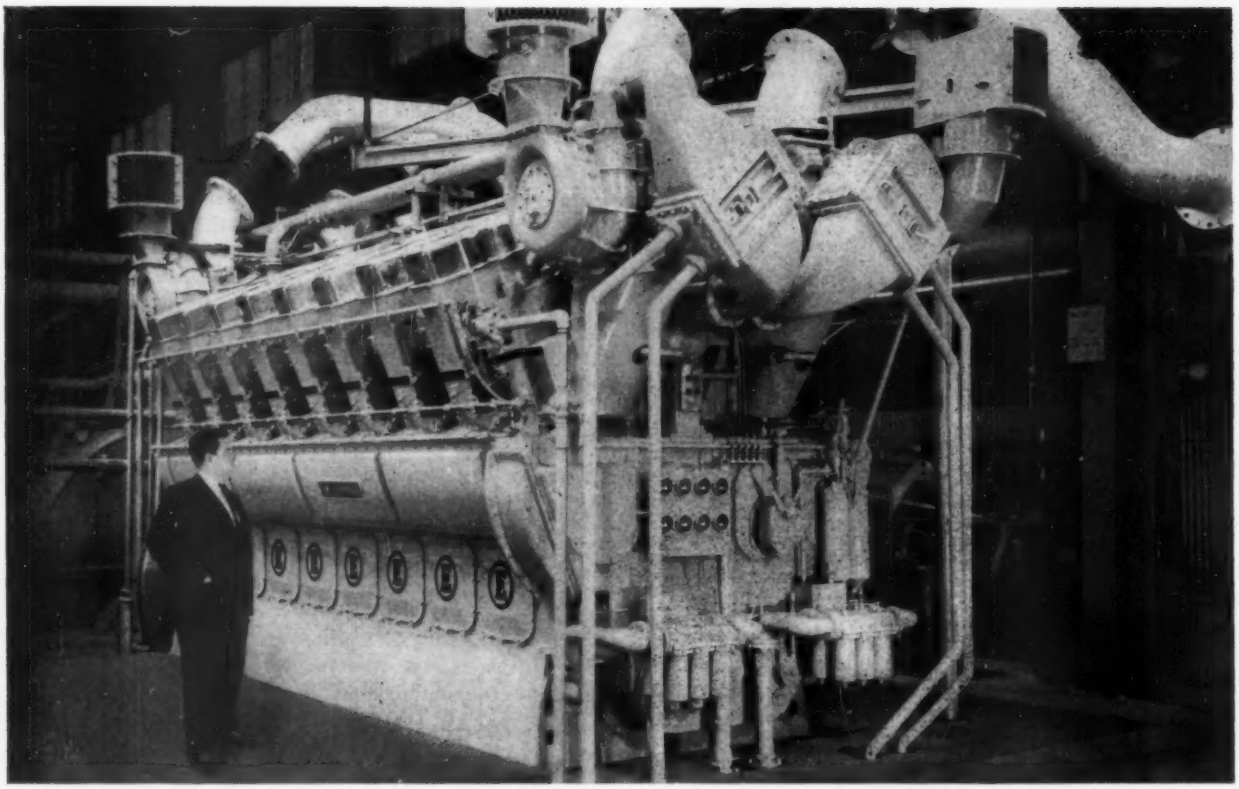
To know all the reasons why Layne pumps are preferred by Industry—Municipalities—and Agriculture, write for bulletin number 100.

LAYNE
& BOWLER, INC.
MEMPHIS
General Offices and Factory

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Layne

Water Wells • Vertical Turbine Pumps • Water Treatment



New 7,700 HP Enterprise RV is 20% shorter, 30% less weight than conventional 16-cylinder diesels of equal power.

Enterprise announces the new 16-cylinder RV diesel —World's smallest 7,700 HP engine

"It is a pleasure to present this Enterprise engine—the newest in our line of dependable diesels. The many features and economies of the Enterprise RV make it extremely attractive to users of high horsepower engines—both marine and stationary."

Arthur W. Ostrander, General Sales Manager

Here at last is a turbocharged V-type, heavy-duty engine specifically developed to produce *more* horsepower in a *smaller* unit —dependably and continuously.

For marine installations this means more payload space, greater tonnage capacity than ever before. For electric power generation in municipal or industrial plants, and as power for pumping oil, gas or water, the reduced costs of foundations, installation, operation and maintenance make the RV even more attractive to engineers and owners.

Diesel, dual fuel, tri-fuel, spark ignition

The RV can be operated as a diesel, dual fuel, tri-fuel, or spark ignited gas engine. Its low operating costs on diesel fuel can be cut even further when residual fuels are used. This is "workhorse" power at its dependable best. Thousands of continuous, uninterrupted hours without shutdown are characteristic of the RV's slow-speed operation.

Less bulk makes installation easier, servicing simpler. RV maintenance doesn't require major disassembly, either. All working parts are accessible for service from the outside. So overhaul costs are kept low and downtime is reduced to an insignificant factor.

Vital statistics of Enterprise RV:

Type: 4-cycle, 12 or 16 cylinders, 17" bore by 21" stroke
Rating: To 7,700 BHP at 400 rpm. Piston speed: 700-1,400 fpm.
Dimensions: 26'4" long, 9'4" wide, 12'1" high
Weight: (less flywheel) 189,100 lb.
Fuel: Diesel, dual fuel, tri-fuel, spark ignited gas

Enterprise welcomes your inquiries. Why not plan now to get the complete story? Call or write today, or use the handy coupon.

ENTERPRISE

ENTERPRISE ENGINE & MACHINERY CO.
Subsidiary of General Metals Corporation

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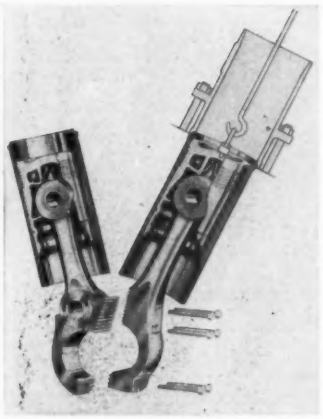
How the exclusive Enterprise turbocharged V-block design packs more heavy-duty horsepower into less space, less weight

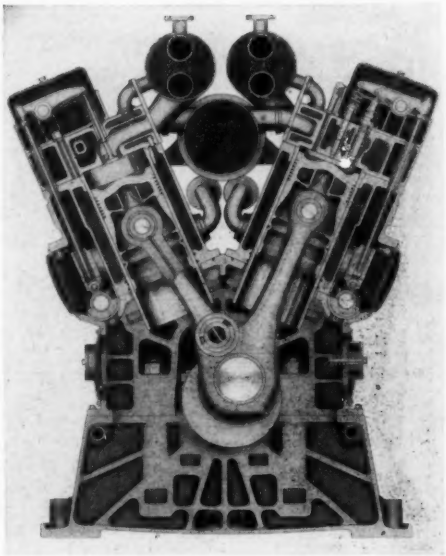


Connecting rod design cuts engine length 20%

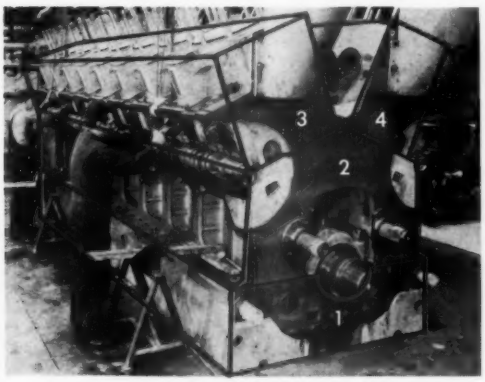
The master-and-link articulated connecting rod permits opposite cylinders in the V to lie in the same plane. Weight-to-horsepower ratio is reduced to only 25 lb. per HP — some 30% less than conventional units.

Completely accessible— easy to service

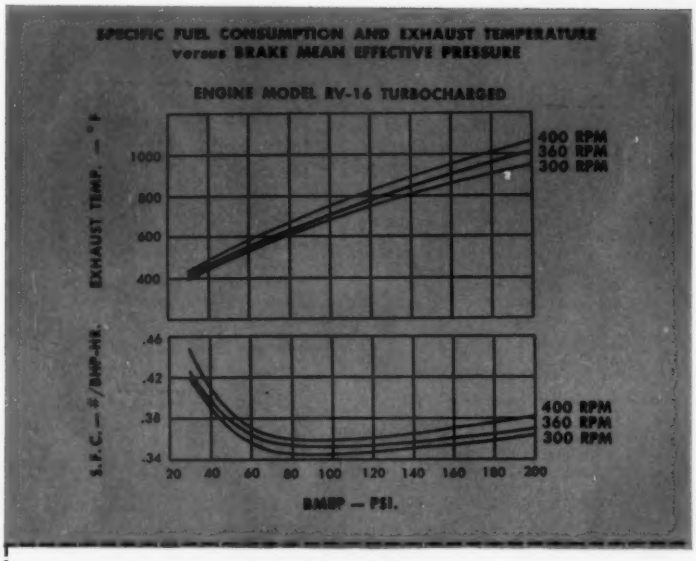
The master connecting rod features a rack-tooth joint for quick and easy removal of the entire assembly. Simply release six clamping bolts and withdraw con rod and piston through cylinder liner.



For practicality in manufacture, shipment, installation and maintenance, the RV engine frame is built in four pieces — base (1), crankcase (2) and two identical cylinder blocks (3 & 4), all of quality-controlled cast iron for maximum strength and rigidity.



The high performance standards achieved by the Enterprise RV-16 turbocharged engine are shown on the curve at right. Tests are made under standard conditions on the 10,000 HP capacity hydraulic dynamometer specially built for this new high-horsepower engine series.



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Enterprise Engine & Machinery Co.
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I am interested in Marine ☐ Stationary ☐ application.
☐ Please send me your new literature on Enterprise RV engines.
☐ Have your representative call.

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

Which Catalogs Interest You?

Write directly to the manufacturers, or use the Post Card on the insert following page 52

Water-Tight Gaskets for Concrete Sewer Pipe

307 A new type rubber joint for coupling standard small-diameter bell-and-spigot concrete sewer pipe is described in a folder from HAMILTON KENT MFG. CO., 427 W. GRANT ST., KENT, OHIO. Rexon "K" gaskets are said to be watertight, root-proof and non-deteriorating, and are made for pipe from 4 to 24 inches in diameter. They are quickly installed, even in wet trenches, without special tools.

A New Approach to Odor Removal

308 Air pollution problems due to the handling and disposal of solid, liquid and gaseous wastes are quickly solved with Alamask reodorants. At low cost, Alamask can be used either to mask the malodor or to create a condition that results in a non-objectionable odor. How your city can reodorize with Alamask, is discussed in literature from RHODIA, INC., 230 PARK AVE., NEW YORK 17, N. Y.

Fibres for Street Sweeper and Gutter Brooms

309 Quality fibres and flat steel wire for refilling your street sweeper and gutter brooms are immediately available from FLO-PAC FIBRES, INC., 1501 4th AVE. S., MINNEAPOLIS 4, MINN. The company also offers an expert broom refilling service. Palmyra stalks, African bass, split hickory and flat steel wire are used. Write for literature.

Heavy-Duty Motor Grader

310 New toggle-type, finger-tip control levers are featured on the Forty Five motor grader, enabling you to get top performance with minimum effort. The machine's Roll-Away moldboard rolls the load instead of pushing it. Power is supplied by a heavy-duty diesel engine. For additional details on this big powerful motor grader, write ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS.

Garbage Disposers Reduce Collection Costs

311 Your city can save money on refuse collection by encouraging the installation of food waste disposers. A good unit to recommend is the Youngstown Kitchens food waste disposer. This self-cleansing, continuous-feed disposer produces a consistent slurry that flows easily through any sewer. It installs easily in sinks with a 3½- to 4-inch opening. For additional details, write YOUNGSTOWN KITCHENS DIVISION of AMERICAN-STANDARD, WARREN, OHIO.

Fence Your Public Property

312 Any municipal property — from water and power plants to public lawns and playgrounds—can get round-the-clock protection from Realock fence. Realock's Type 426 is available in heights up to 13 feet, and is topped with six strands of sharp barbed wire. Other styles are available for every municipal need. Write REALOCK FENCE, THE COLORADO FUEL AND IRON CORP., DENVER, COL.

Graders and Rollers

313 The work of street maintenance crews has been greatly simplified by the introduction of these new graders and rollers. The Grad-O-Matic grader is available in three models: 190-hp, 20 tons; 140-hp, 15 tons; and 125-hp, 12½ tons. Roll-O-Matic rollers are furnished in 2-axle and 3-axle tandem models as well as 3-wheel models. Automatic operation is featured in all new units. Write THE GALION IRON WORKS & MFG. CO., GALION, OHIO.

Easy-to-Operate Chlorine Feeder

314 Municipal waterworks, sewage-treatment plants and swimming pools should all benefit from this economical chlorine feeder. The Sterelator is easy to install, simple to operate, and economical to maintain. It can be furnished for fully-automatic, semi-automatic and manual control. Write EVERSON MFG. CORP., 203 W. HURON ST., CHICAGO 10, ILL.

Lanterns and Torches Signal Danger

315 Nothing is more important on city construction and repair jobs than proper warning lights. The R. E. Dietz Co. has provided for adequate safety lighting with its complete line of kerosene torches and lanterns. These economical units burn longer and are completely dependable. Write R. E. DIETZ CO., 100 LEAVENWORTH AVE., SYRACUSE 1, N. Y.

Loads, Mixes and Measures Concrete

316 Any street construction or maintenance job involving the services of concrete can be greatly simplified through the use of a Jaeger 3½S Auto-Loader. With the Auto-Loader you load while you mix and measure as you load. The power shaker action of the unit's hopper charges the drum in a flash the instant you open the gate. Get full details from THE JAEGER MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO.

Portable Traffic Signals

317 Here is a traffic signal that can be rolled, hauled or transported by truck to any spot not protected by permanent signals. Called the "Traffic Sentry," it is designed to meet all the requirements of standard permanent traffic signal operation. Get full facts and specifications from PORTABLE TRAFFIC SIGNALS, INC., 146 W. 21st ST., LOS ANGELES 7, CALIF.

Combination Root Cutter and Sewer Cleaner

318 Easily adjusted to fit any sewer from 8 to 30 inches in diameter, the Expanding root cutter and sewer cleaner will clean the entire sewer walls, top, sides and bottom, cutting and removing roots and caked sediment, and restoring the sewer to full capacity. For a new catalog, write the EXPANDING SEWER MACHINE CO., 108 E. WALNUT ST., NAPPANEE, IND.

Combination Pipe and Leak Locator

319 Detecting, tracing and estimating the depth of buried pipe and checking the pipe for leaks, is a job for the Dectectron "505-C." This combination pipe and leak detector utilizes the latest electronic tubes and features a special vibration pickup that assures maximum sensitivity. Write COMPUTER-MEASUREMENTS CORP., UTILITIES INSTRUMENT DIV., DEPT. 54, 5528 VINELAND AVE., N. HOLLYWOOD, CALIF.

Protects Steel Water Pipe

320 A sure way to protect steel water pipe from the damaging effects of soil chemicals is with Blue Flag pipe wrap, made of special inert glass. Blue Flag provides a strong, uniformly porous mat said to increase enamel strength, resist cracking and backfill damage, and add years to the life of your pipe. It is fully described in literature from L-O-F GLASS FIBERS CO., DEPT. 85-106, 1810 MADISON AVE., TOLEDO 1, OHIO.

Snow Loader Has Year-Round Use

321 In winter, the Barber-Greene Model 544 will load snow into trucks at the rate of 7 to 11 cubic yards per minute, clearing city streets quickly and economically. After the snow season, the unit is easily converted to an aggregate loader and, in autumn, it is transformed into an efficient leaf loader. Full details on this versatile machine may be obtained from the BARBER-GREENE CO., AURORA, ILL.

Elevated Water Tanks

322 A safe, dependable way to store water is in a Horton elevated tank. These sturdy structures are built in standard sizes to hold up to 3,000,000 gallons of water. For information on the type and size tank best suited to your municipal requirements, write CHICAGO BRIDGE & IRON CO., CHICAGO 4, ILL.

Long-Lasting Traffic Lines

323 Marking traffic lines on city streets is a fast, inexpensive operation when you paint them with Perma-Line. This effective thermo-compound is easy to apply, dries quickly, and lasts longer than ordinary paints. It is available from VEON CHEMICAL CORP., 22-09 BRIDGE PLAZA N., LONG ISLAND CITY 1, N. Y.

Fast, Easy Way to Move Trees

324 Now you can move trees up to 7 inches in diameter quickly and easily with a Ryan tree mover. The Ryan is simple to operate. All you do is back it close to the hole of the balled tree, attach a powerful ratchet lifting hoist to the sling, and lift the tree onto the cradle. It can then be towed by a light truck or jeep, or maneuvered independently. Write RYAN LANDSCAPING EQUIPMENT CO., 871 EDGERTON ST., ST. PAUL, MINN.

(Please turn to page 40 for more Bulletins)

New AUTOFLOW

102V Semi-Actuated Control

The first complete semi-actuated control for practical general application.

Embodies features not found in other semi-actuated controls.

Again AUTOFLOW design stresses simplicity to insure economy of installation, operation, inspection and maintenance.

AUTOFLOW 102 V Features:

- Jack mounted synchronous and electronic timers
- Actuated or pre-timed operation
- Standard operational characteristics
- Visual check of all timing operations.
- Panel construction for compact accessibility
- Lubricated for life
- Complete disassembly without tools.

BULLETIN #5504

SOUTHERN Signals INC.

222 BEACH STREET • BOX 1303 • SHREVEPORT, LOUISIANA

Use Northern Gravel for Rapid Sand Filter

The new Northeast Station in the City of Detroit, which is scheduled for completion in 1956, is one of the major projects included in the water department's expansion program. The Northern Gravel Company furnished 120 carloads of filtering materials for the 48 rapid sand filters incorporated in this plant.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Speeds Catch Basin Cleaning

325 Operated by one man, this hydraulic truck crane, equipped with a hydraulic orange peel bucket, does a fast, efficient job of cleaning catch basins. The Hiab crane is easily installed, and takes only 12 feet of mounting space. When not in use, it folds compactly out of the way. Get full details from STANCO, INC., 1931 PONTIUS AVE., LOS ANGELES 25, CALIF.

Easy Way to Repair Concrete Structures

326 Is your reservoir leaking? Is the concrete in your sewage treatment plant suffering from the damaging effects of wear and weather? A really practical answer to the problem of concrete deterioration is provided by economical Gunite. This versatile repair material is described in a 48-page bulletin from PRESSURE CONCRETE CO., DEPT. AC, 315 S. COURT ST., FLORENCE, ALA.

Digs Trenches Efficiently

327 You get three separate digging motions when you use the Bucyrus-Erie H-3 Hydrohoe to dig water and sewer trenches. The primary digging force is applied with a hydraulically-operated ram; the second is obtained through the 3-foot extend-retract action of the telescoping boom; and the third force is the unit's powerful "wrist-action" dipper. Write BUCYRUS-ERIE, SOUTH MILWAUKEE, WIS.

Open Steel Flooring for Water, Sewage Plants

328 Make sure the open steel flooring in your water or sewage plant is completely safe, economical, and easy to keep clean, by specifying Klemp welded and riveted open steel grating. Klemp will also furnish you with catch basins, drain grates, bridge decking and sidewalks, and safety stair treads. For full facts, write KLEMP METAL GRATING CORP., 6601 S. MELVINA AVE., CHICAGO 38, ILL.

Add Gate Valves Without Shutdown

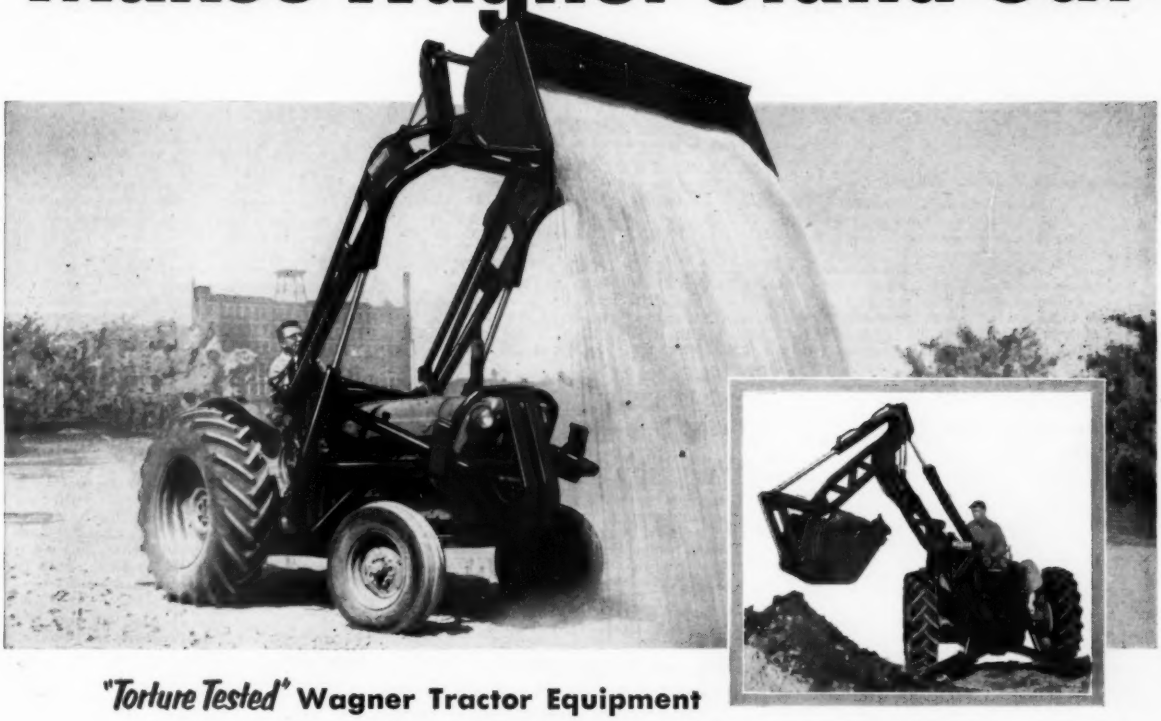
329 It's easy to replace inoperable valves or to add needed control in your water system when you're working with the Mueller H-800 inserting valve. The H-800 is easily installed in any line under pressure, without interrupting flow. Once installed, it is operated like an ordinary gate valve. For the "how to do it" story on Mueller inserting valves, write MUELLER CO., DECATUR, ILL.

Lawn Roller for Parks and Golf Courses

330 Maintenance crews at city parks, schools and golf courses should appreciate the speed and efficiency of the Scimitar Multi-Purpose Poweroll. This versatile lawn roller is equipped with a 3-hp, 4-cycle gas engine, a roller chain, and forward and reverse drives. When filled with water, it weighs about ½-ton. Write POWER DEVELOPMENT CO., INC., MILLS RD., DEPT. M, AVON OHIO.

(See p. 42 for more Bulletins)

Ruggedness Built In Makes Wagner Stand Out



"Torture Tested" Wagner Tractor Equipment

Gives Longer Life—Reduces Down-Time and Repair Cost

Rugged work requires rugged equipment and that's exactly what you get with Wagner "Torture Tested" tractor equipment. Every stress point is *doubly* protected. Heavy-duty construction keeps maintenance costs way down and productive time way up. Wagner equipment stays on the job day in and day out working for you and more profits. No wonder Wagner tractor equipment is recognized as so far superior it has become No. 1 in America by a wide, wide margin. See all the rugged features of Wagner tractor equipment and the numerous attachments that can make a tractor your most versatile piece of equipment. Get proven dependability no matter how tough the job. Get Wagner tractor equipment today.

wagner
TRACTOR EQUIPMENT

WAGNER IRON WORKS, 1905 South 1st St., Milwaukee 1, Wis. Dept. 1308

Send me more information on Wagner Tractor Equipment for a ..... (make) ..... tractor.

NAME .....

COMPANY .....

ADDRESS .....

CITY ..... STATE .....

"WAGNER BUILT" MEANS "BETTER BUILT" FOR OVER 105 YEARS

Which Catalogs Interest You?

Write directly to the manufacturers, or use the Post Card on the insert following page 52

No Pump House Needed

331 The BJ Submersible pump is powered by an electric motor attached directly to the impellers. The combination operates completely submerged in water at any depth, needs no pump house, and is unaffected by weather extremes, floods or dust. The sealed unit is designed for quiet operation, without vibration, and is said to give more than 20,000 pumping hours without service. No field adjustments are necessary. Write BYRON JACKSON, DIV. of BORG-WARNER CORP., P. O. BOX 2017A, TERMINAL ANNEX, LOS ANGELES 54, CALIF.

Low-Cost Aerial Maps

332 Choosing the most economical freeway routes, deciding where to locate sewer systems, and choosing the proper sites for off-street parking, schools, parks and playgrounds, are easy decisions when you're working from Fairchild Photomaps and Contour Maps. These economical aerial maps show clearly the location of every street, building, tree and vacant lot. For full information, write FAIRCHILD AERIAL SURVEYS, INC., LOS ANGELES, CALIF.

Reflectorize Your Own Traffic Signs

333 Save money on reflectorizing your traffic signs with this easy do-it-yourself method. Simply apply special Cataphote plastic binder to the sign area and sift on crystal clear Cataphote 202 reflective beads. No special tools or training are required. For *Catalog 9AK*, write CATAPHOTE CORP., TOLEDO 10, OHIO.

Better Swimming Pools

334 Improve the recreational facilities in your community by installing these leak-proof swimming pools made entirely of steel by KOVEN STEEL SWIMMING POOLS, INC., 90-A E. DICKERSON ST., DOVER, N. J. Koven pools are designed to operate dependably in all climates, and require as little upkeep as an occasional coat of paint. Both indoor and outdoor models are available.

Loader and Backhoe for John Deere Tractor

335 Increase the usefulness of your John Deere "420" crawler tractor on a variety of municipal applications by equipping it with a Loadmaster front-end loader and Scout D7OHL backhoe. The Loadmaster will lift over 3,500 pounds up to nine feet high. The backhoe digs 12 feet deep, reaches 14 feet, and loads to a 9-foot dumping height. Write SHAWNEE MFG. CO., TOPEKA, KANS.

Does Your City Need Extra Land?

336 Any city concerned with land acquisition for new highways, schools or power lines, or for slum clearance projects, should benefit from this interesting brochure on land acquisition and related services. Prepared by an independent land organization, the publication gives a full explanation of professional acquisition methods. It is available from AMERICAN RIGHT OF WAY & APPRAISAL CONTRACTORS (AR/WAC), 1937 HILLHURST AVE., LOS ANGELES 27, CALIF.

Keeps Sewage Equipment from Corroding

337 Whether the equipment in your sewage treatment plant is made of iron, steel or concrete, adequate corrosion protection is possible with Pitt Chem coal tar coatings. These heavy-duty coatings are easy to apply by roller, spray or brush. For additional data, write PITTSBURGH COKE & CHEMICAL CO., GRANT BLDG., PITTSBURGH 19, PA.

Cast-Iron Fittings for Waterworks

338 Short-body and mechanical-joint water-main fittings in inside diameters ranging from 2 through 12 inches, and standard bell spigot water main fittings 2 through 24 inches, are immediately available from TRINITY VALLEY IRON AND STEEL CO., P. O. BOX 664, FORT WORTH, TEX. The company will also furnish bell and spigot water main fittings — 24 through 36 inches, and Ring Tite fittings—3 through 12 inches. All units are AWWA approved.

Tight-Closing Butterfly Valves

339 Tight closure under all operating conditions is assured when you specify W. S. Rockwell butterfly valves. Designed to meet standard AWWA specifications, these valves are furnished in diameters from three to 72 inches, for shut-off pressures up to 125 pounds, at maximum pipeline velocity of 8 and 16 fps. For *Bulletins* 574 to 578, write W. S. ROCKWELL CO., 2726 ELIOT ST., FAIRFIELD, CONN.

Operates Parking Lots Without Attendants

340 Now you can operate public parking lots 24 hours a day, without the need for attendants, by using the Parcoa system. The heart of this self-service system is an electronic device used to control entrance and exit gates. The mechanism is actuated by a simple card which serves as a "key" for tenants. For additional facts, write PARKING CORP. OF AMERICA, 4619 N. RAVENSWOOD AVE., CHICAGO 40, ILL.

Flashing Safety Lights and Barricades

341 This new barricade for traffic control around hazardous locations is portable, folding, and designed for use with flasher safety lights. The flashing neon light is said to be visible at distances up to two miles. The light flashes continuously for as long as 60 days. For *Catalog LL-3143*, write R. D. FAGEOL CO., KENT, OHIO.

Tri-Lingual Story on Sewer Pipe

342 You can read the story about this new type of concrete sewer pipe in French, German or English. According to the manufacturer, the pipe can be fabricated in a hurry and to extra strengths, at low cost. Get your copy of the Vibrapipe story from GEORGE W. HOFFMANN CO., SIOUX CITY, IOWA.

Makes Quick Work of Refuse Collection

343 You can hasten refuse collection in your community with the HydePak, a fast-loading high-compaction refuse collection body available in 13-, 16-, 20- and 24-yard capacities. The HydePak has a minimum of working parts in its automatic hydraulic system, assuring low maintenance costs. Write HYDE CORP., P. O. BOX 1265, FORT WORTH, TEX.

Heavy-Duty Excavator

344 The Koehring 305, a new, heavy-duty excavator, is announced by the KOEHRING CO., MILWAUKEE 16, WIS. The unit is available either crawler mounted or on a truck chassis, and can be equipped as a shovel, crane, hoe or dragline. It carries a rated lift capacity of 25 tons on rubber, and 15 tons on crawlers, and features a ¾-cubic-yard dipper capacity. Full facts are contained in a new 8-page catalog, available on request.

Fast Way to Count and Package Coins

345 All coins from pennies to half dollars are accurately counted and quickly packaged with a Johnson Model 30-SS automatic counter-packager. This high-speed machine will fill, wrap and crimp an average of 900 rolls per hour. The operator simply inserts empty wrappers with one hand, and removes filled and crimped rolls with the other. Write JOHNSON FARE BOX CO., 4619 N. RAVENSWOOD AVE., CHICAGO 40, ILL.

Converts Brush into Chips

346 It takes only 21 minutes to convert a truckload of useless brush into a small pile of chips when you're working with an M & M brush grinder. This portable machine will handle branches up to six inches in diameter, and will deposit them in a truck or in a neat pile on the ground. It is available from MITTS & MERRILL, 1003 S. WATER ST., SAGINAW, MICH.

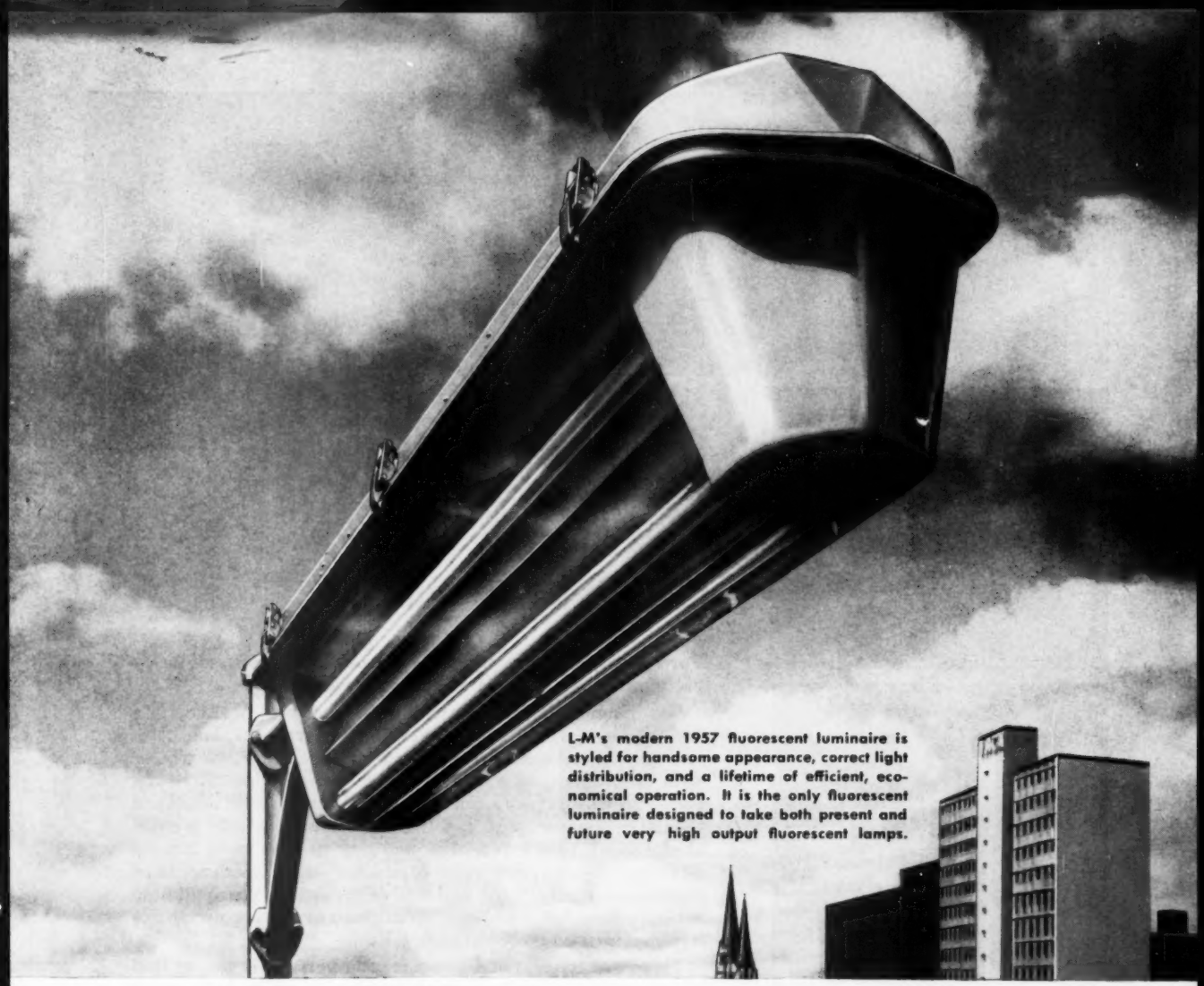
Masonry Saw

347 Now you can cut stone, brick or any other masonry material quickly and easily with a Clipper saw. This efficient unit cuts any shape or size in seconds. Diamond, abrasive and reinforced Clipper blades are available for every cutting job. For full details, write CLIPPER MFG. CO., 2815 N. WARWICK, KANSAS CITY 8, MO.

An Answer to Fire Truck Maintenance Problems

348 Does your fire truck tank show rust? Are your fire pump gates and valves hard to open? An inexpensive answer to these and other fire truck maintenance problems may be found in Dakota Tank Saver & Lubricant. One-half gallon of this lubricant will treat a 500-gallon tank, pump and gates. You just pour it in the booster tank and circulate. Get full details from the DAKOTA CHEMICAL CO., SIOUX FALLS, SOUTH DAKOTA.

(Please turn to page 45 for more Bulletins)



L-M's modern 1957 fluorescent luminaire is styled for handsome appearance, correct light distribution, and a lifetime of efficient, economical operation. It is the only fluorescent luminaire designed to take both present and future very high output fluorescent lamps.

Line Material Announces New, Advanced 1957-Style Fluorescent Luminaires

L-M's new fluorescent luminaires offer an exciting new look in street lighting equipment. The units provide more comfortable visibility, and greatly increase the scope of vision for both motorists and pedestrians.

L-M's new luminaires are the only units available today that are designed to take both present and future VHO (very high output) fluorescent lamps.

The new luminaires have a long, slim modern look, and retain all the outstanding performance characteristics of L-M's original design. Their broad, cool, white light source provides virtually glareless illumination —the ultimate goal in lighting.

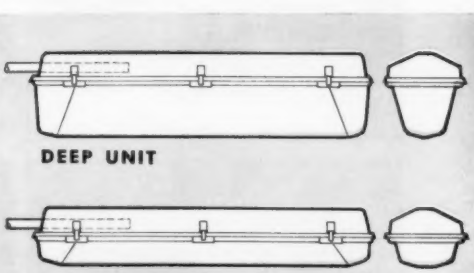
L-M's modern fluorescent luminaire distributes the light over a broad area, giving good balance between building and road surfaces.

These new street lighting luminaires are available in deep and shallow styles, in both four- and six-foot lengths. For other outdoor lighting applications, such as parking lots, store front lighting, etc., other styles are available.

Get Complete Information

Get details of L-M's new 1957-style fluorescent luminaires. L-M Street Lighting Engineers will cooperate with you in designing the best lighting system for your area. Ask your L-M Field Engineer or Street Lighting Engineer for more complete information. Or write Line Material Company, Milwaukee 1, Wisconsin. In Canada: Canadian Line Materials, Ltd., Toronto 13, Ontario.

277



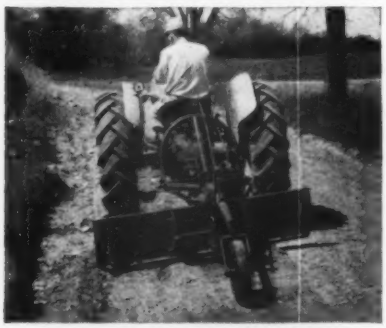
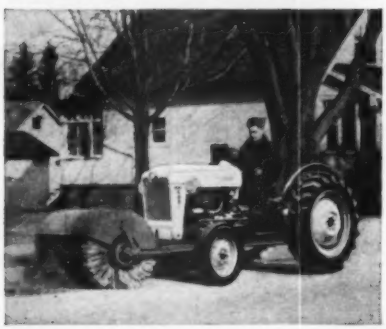
DEEP UNIT

SHALLOW UNIT

Deep and shallow units are available in both four- and six-foot lengths. L-M's new fluorescent luminaires provide excellent light distribution for all applications.

LINE MATERIAL Street Lighting

A McGRAW ELECTRIC COMPANY DIVISION

How Ford Tractor versatility speeds work, cuts costs on municipal jobs...

Ford Tractor power stretches tax-dollars because it helps get more jobs done faster, and at lower cost!

For example, a Ford Tractor equipped with backhoe is a fast, efficient rig for digging service line trenches, bell holes and utility connections. *And you can use the same tractor* with front-mounted hydraulic angle dozer to backfill, doze, rough grade. Or, take a Ford Tractor equipped with new Ford "Step-On" Loader. You can lift and load up to 1000 pounds at the touch of a lever. *And you can use the same tractor* with quick-attached rear blade for finish grading, road maintenance, oil mixing and ditching... with a rear-mounted rotary cutter for mowing . . . with a reversible scoop for hauling fill on small yardage jobs.

This Ford concept of 4-wheel tractor versatility means that your equipment dollars work harder on more jobs, more days in the year. Ask your Ford Tractor and Equipment dealer to demonstrate the power size you need—Ford's 600 series with 29 drawbar h.p., the fuel-thrifty Fordson Major Diesel with 36.3 drawbar h.p., or an 800 series Ford Tractor with over 40 horsepower at the drawbar! See your dealer soon, or write direct to:

Ford TRACTORS

TRACTOR AND IMPLEMENT DIVISION
FORD MOTOR COMPANY
Birmingham, Michigan

Which Catalogs Interest You?

Write directly to the manufacturers, or use the Post Card on the insert following page 52

Pumping Water Economically

349 Water- and oil-lubricated vertical turbine pumps designed for city water wells, and for use in pumping water from lakes, reservoirs and streams, are described and illustrated in *Bulletin WO-53*. For your copy, write LAYNE & BOWLER, INC., MEMPHIS 8, TENN.

New Life for Old Tractors and Graders

350 Are you getting top performance from your tractors and graders? Do you have frequent down time or excessive maintenance? These and other costly problems are often solved simply by repowering your machines. By repowering with Cat diesel engines, you get greater production, better operating economy, and more working time. For additional details, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

It Also Cleans Catch Basins

351 Now you can use your Good Roads Scavenger to clean catch basins, too, according to the GOOD ROADS MACHINERY CORP., MINERVA, OHIO. An efficient attachment is being offered which will clean the deepest catch basin in minutes. Wet or dry refuse, twigs, leaves, stones and bottles, are sucked into the Scavenger hopper for easy disposal, without clogging. Write for details.

Combination For All City Jobs

352 Using this combination tractor and 125-cfm air compressor, cities can drill rock; break concrete; load, unload and haul materials; dig, grade, backfill and tamp; plow snow; or sweep concrete pavement. The Pneumatractor will operate all kinds of compressed air tools —from chipping hammers and paint sprayers to paving breakers. It is described in *Catalog* 5540 from SCHRAMM, INC., 603 N. GARFIELD AVE., WEST CHESTER, PA.

Light-Weight Sewer Pipe

353 Recommended for sewer and drainage lines, Bermico bituminized fibre pipe effectively resists the damaging effects of acids and alkalies, won't rust or corrode, and is completely root-proof. The pipe is furnished in lightweight, 8-foot lengths for fast, easy installation. It is described in literature from BROWN CO., DEPT. TB-9, 150 CAUSEWAY ST., BOSTON 14, MASS.

Right-Angle Drives

354 Johnson right-angle drives furnish you with a means of providing dependable standby power or an alternate supply of power for vertical shafted centrifugal pumps or turbine pumps. They are discussed in illustrated engineering catalogs from JOHNSON GEAR & MFG. CO., BERKELEY 10, CALIF.

Flume and Weir Meters

355 These simple, self-cleaning meters will indicate, record and integrate sewage or water flows. Standard packages are available for both indoor and outdoor installation. Get the full story from BAILEY METER CO., 1035 IVANHOE RD., CLEVELAND 10, OHIO.

Installs Pipe Without Stopping Traffic

356 You don't have to stop traffic when you install water and sewer pipe underground with a Crose auger-type road boring machine. This lightweight unit is only 27 inches wide, 7½ feet long, and 70 inches high. It is easily handled, both in and out of the ditch, with a gin truck, and is powered by a ZXB Hercules engine and transmission. Write M. J. CROSE MFG. CO., INC., 2715 DAWSON RD., TULSA, OKLA.

Street-Lighting Luminaires

357 Mercury luminaires for any street application can now be obtained from WESTINGHOUSE LIGHTING DIVISION, EDGEWATER PARK, CLEVELAND, OHIO. A line has just been rounded out by the OV-35 for use with 400-watt J-H 1, or 700-watt B-H 18 fluorescent mercury lamps. Its optical system is completely sealed against bugs, dirt and moisture.

Keeps Streets Free of Ice and Snow

358 Safe, ice-free streets are yours all winter long with a stainless steel Scotchman. The Scotchman enables you to salt-treat streets faster, up to 20 miles in 48 minutes. Its blower spreads a full 30-foot width in a perfect "bird shot" melting pattern. The machine uses as little as ½-ounce of salt per square yard. Write TARRANT MFG. CO., 27 JUMEL PL., SARATOGA SPRINGS, N. Y.

Street Maintenance

359 Simplify your street construction and maintenance jobs with this self-propelled roller, Model SR-9, designed for easy steering and handling as well as maximum visibility. The new roller furnishes a 9-ton load and a maximum lineal inch compaction of 275 pounds. It features nine pneumatic-tired wheels said to provide an even rolling path of 66 inches with a positive ½-inch tread overlap. Write ROSCO MFG. CO., 3118 SNELLING AVE., MINNEAPOLIS 6, MINN.

Controls Valves in Water, Sewage Plants

360 LimiTorque Control is an efficient, automatic, mechanically-actuated device for opening and closing operations of globe gate, butterfly and rotary plug valves, as well as sluice gates, in waterworks and sewage treatment plants. The opening and closing stops are predetermined to suit the application. Operation can be effected by manual, push-button or automatic control. Get *Catalog L-550* from PHILADELPHIA GEAR WORKS, ERIE AVENUE and "G" ST., PHILADELPHIA 34, PA.

Street-Name Signs

361 Made with Federated Tenzaloy, a special high-strength aluminum alloy, street-name signs won't rust or tarnish, and never need painting. These street signs are both lightweight and sturdy, and never require maintenance. For full details on Tenzaloy, write FEDERATED METALS DIV., AMERICAN SMELTING AND REFINING CO., 120 BROADWAY, NEW YORK 5, N. Y.

New Split Sleeves Repair Water Main Breaks

362 A new bulletin describing the Eddy-Iowa mechanical joint split sleeve for repairing water mains, is available from the EDDY VALVE CO., WATERFORD, N. Y., and the IOWA VALVE CO., OSKALOOSA, IA. The sleeves will repair all classes of cast-iron pipe, 3 to 16 inches in diameter, and Class 150 cement-asbestos pipe, 4, 6 and 8 inches in diameter.

Scales for Every Municipal Use

363 Whatever your city's weighing requirements, The Howe Scale Co. has a unit to meet your needs. Scales are available for use in municipal garages, and for measuring and weighing chlorine in water plants. Large truck scales may be used for measuring and recording refuse quantities at incinerators and other refuse disposal sites. Get full details from THE HOWE SCALE CO., INC., RUTLAND, VT.

Watertight Joints

364 Prevent water from seeping through your concrete foundations with Sealtight "Durajoint," a polyvinylchloride waterstop offered by W. R. MEADOWS, INC., 7 KIMBALL ST., ELGIN, ILL. "Durajoint" was especially designed for use between adjacent sections of concrete structures. It is available in easy-to-handle 50-foot coils. A new *"Durajoint" Bulletin* will be furnished on request.

Equipment for pH and Chlorine Control

365 A little textbook on laboratory procedures for effective pH and chlorine control is offered for perusal by municipal water plant and swimming pool officials. A full line of modern and practical equipment, including the Taylor Comparator, Chlorimeters and sterilizer sets, is described and illustrated. For your copy, write W. A. TAYLOR & CO., 7300 YORK RD., BALTIMORE 4, MD.

Cuts Large-Size Water, Sewer Pipe

366 Now you can cut large-size water and sewer pipe—in or out of the ditch—quickly and economically with the Ellis pipe cutter. The cutter features a drop-forged frame and links, and long-lasting cutter wheels. It is described in *Circular and Price List No. 35 AC*, from ELLIS & FORD MFG. CO., FERNDALE 20, MICH.

Easy-to-Spot Parking Meters

367 It's easy to spot a violation when your city uses Turret parking meters. A transparent turret on top of the meter shows a red signal when parking time expires. This signal is clearly visible several hundred feet away. The Turret timer mechanism is adjustable for any coin combination, from one cent to 50 cents, and is fully accumulative. Write VOGLESONG PRODUCTS CORP., 1518 PARK AVE., EMERYVILLE, CALIF.

(Please turn to page 46 for more Bulletins)

SAVE

UP TO 75%

ON YOUR COST OF LOADING AND HAULING BRUSH!

In actual service, rugged ASPLUNDH CHIPPERS eliminate 3 out of 4 truckloads of brush to the disposal area. (*1 truckload of chips equals at least 4 of brush*).

And chips can be a valuable by-product. Use them for mulching, shrub beds, erosion control, walks, and cushion material in playground areas.

An ASPLUNDH CHIPPER can help you in many *ways. For the whole story, clip and mail this coupon,* today.

ASPLUNDH CHIPPER COMPANY
505 York Road, Jenkintown, Pa. *(Dept. C)*

Please send me FREE Chipper Booklet at once:

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

BY ACTUAL TEST THE FASTEST CHIPPER MADE

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Fast, Economical Way to Clean Sewers

368 A new sewer-and-drain cleaning machine, the Electric Eel, features a dual cable that self-feeds both in and out of the sewer quickly and efficiently. The light-weight power unit is easily operated by one man, and eliminates all manual handling. A complete set of cleaning tools is available for lines ranging from 3 to 16 inches. Write THE OHIO TOOL & ENGINEERING CO., 128 N. SPRING ST., SPRINGFIELD, OHIO.

Battery-Operated Warning Lights

369 To guard against accidents at city construction and repair sites, make sure you're equipped with dependable Neo-Flasher warning lights. All you do to operate these lights is turn on the switch and let them run. No fuel, wiring or maintenance is necessary. One Neo-Flasher Pak battery will operate for about 1,000 hours. Write NEO-FLASHER MFG. CO., 32 VALHALLA DR., BURBANK, CALIF.

"Red Ball" Shows Parking Violation

370 A special "red ball" signal on top of this parking meter is visible in all directions, making it easy for a traffic officer to spot a violation. The meter has an enclosed coin slot and only five major moving parts. Coin and time combinations can be changed as desired. Get full information from RED BALL PARKING METERS, DIV. of J. W. MENHALL DRILLING CO., BENTON, ILL.

Floor Grating and Stair Treads

371 Wherever you need dependable grating—for the floors in municipal plants, for bridge sidewalks, and for catch basins and catwalks—get it from IRVING SUBWAY GRATING CO., INC., 50-46 27th ST., LONG ISLAND CITY 1, N. Y. Light-weight Irving grating is self-cleaning and self-draining, and provides a safe walking surface. Also available are dependable Irving stair treads, tree guards and bridge decking. Details on request.

Water Meters

372 Maintenance is at a minimum when your water department specifies "Watch-Dog" water meters. These dependable units feature precision parts—always interchangeable—and are designed for a long, trouble-free life. Both split case and frost-proof models are available. Write WORTHINGTON-GAMON METER DIV., 296 SOUTH ST., NEWARK 5, N. J.

Water Supply Pumps

373 Morris double-suction water pumps are available with either sleeves or ball bearings; in single- and multi-stages for all capacities and delivery pressures required in municipal service. They are fully described in *Bulletin 179* from MORRIS MACHINE WORKS, BALDWINSVILLE, N. Y.

(See p. 48 or more Bulletins)

LORAIN, OHIO CALLS FOR

TYLOX

RUBBER PIPE JOINTS

REXON
PIPE COATING

to

★ L[illegible]IFE

of new sewerage
and drainage lines*

Lewis Goodell, City Engineer, and Jones, Henry & Schoonmaker, Consulting Engineers, had their eyes on *future,* as well as present costs when they designed new interceptor sewers for Lorain . . . Here's how their call for TYLOX-jointed, REXON-coated concrete pipe helped Lorain citizens get *more* for their waste disposal money . . .

FAST-WORKING TYLOX helped offset high construction costs with *more pipe down per day* . . . sped the project even further by eliminating "wet trench" delays . . . permitting *immediate* backfilling.

LEAK-PROOF TYLOX solved infiltration problems with *compression-tight joints* . . . helping to keep loads down at the treatment plant . . . assuring sediment-proof and root-proof pipe connections.

CORROSION-PROOF TYLOX provided joints that would last . . . *never shrink or deteriorate* . . . And the acid-proof, abrasion-resistant REXON coating inside the pipe was an *extra* safety factor . . . equipping the lines to handle any unusually corrosive wastes which might be required of them in the future.

Write for complete information and case histories on TYLOX RUBBER JOINTS and REXON Pipe Coating. See how these corrosion-prevention products assure taxpayers of "most for their money" on big *or* little sewerage and drainage jobs. And plan now to specify TYLOX Joints and REXON Coating on *your* next pipe project.

*PROJECT:
13,048 ft. of Interceptor Sewers.

PIPE:
Reinforced concrete, sizes 27" through 54" diameters. Manufactured by United States Concrete Pipe Company, Cleveland, Ohio.

ENGINEERS:
Lewis Goddell, Lorain City Engineer, and Jones Henry & Schoonmaker, Consulting Engineers, Toledo, Ohio.

CONTRACTOR:
Falbo Construction Company, Lorain, Ohio.

1075

HAMILTON KENT
MANUFACTURING COMPANY
KENT, OHIO
427 W. Grant St. Tel. 3449

how to CUT CORROSION LOSSES

a report by Koppers Company, Inc.

C. U. Pittman
Supervisor Technical Services

Good surface preparation is basic to the life and effectiveness of protective coatings. Without it, the coating cannot bond properly and may fail to prevent future corrosion.

The surface preparation method selected depends on the type of surface, the degree of corrosion, contaminants present, the desired life of the coating and the physical accessibility of the surfaces to be coated.

* * *

To remove all traces of grease or oil, vapor degreasing or solvent cleaning is necessary *before* mechanical surface preparation. Acid cleaning or pickling to remove rust and mill scale is fast and usually low in cost. After treatment, the acid should be neutralized immediately.

Hand cleaning is recommended only on small jobs, or where areas are not easily accessible. The main problem in using chisels and pointed scrapers is to avoid high ridges which cause thin spots or holidays in the coating. Power brushing and scraping are two of the more common methods of preparing surfaces. For removing rust, they are both quite effective and, usually, reasonable in cost. We have found, though, that power brushing frequently polishes surfaces too much.

Flame cleaning is a good way to remove old coatings and to heat surfaces prior to applying a thermoplastic coating. Flame cleaners are also very good for drying damp surfaces. By creating thermal shock, flamers are an effective—though slow—way to remove mill scale. Surfaces should always be wire-brushed after flame cleaning.

Blast cleaning with sand or grit has proved to be the best way to remove incrustation, rust and mill scale, and is more economical than is generally realized. Blasting is fast on even the most irregular objects. Good practice leaves the surface free of high peaks, but with shallow valleys that make good "anchors" for the coating. Care should be exercised that the air used in blasting is free of oil. Coatings should be applied immediately after blasting or the surface should be primed quickly with WP-1, two compartment type wash primer. WP-1 should also be applied if the cleaned surface cannot be completely dried.

* * *

Concrete and masonry surfaces are prepared best by hand cleaning, power brushing or chemical cleaning. Brushed surfaces should be blown clean with oil-free air, and chemical cleaners should always be neutralized, or removed by flushing, immediately. Patching and repair work should be prepared in the same manner as the original surface.

* * *

The extra care and investment in thorough surface preparation always pay dividends in effective, long-lasting corrosion protection.

Your corrosion problems are our business. If you have any questions on which you'd like assistance, write: Koppers Company, Inc., 1301 Koppers Building, Dept. 103K, Pittsburgh 19, Pa. District Offices: Boston, Chicago, Los Angeles, New York, Pittsburgh and Woodward, Ala. In Canada: Koppers Products, Ltd., Toronto, Ontario and Edmonton, Alberta.

KOPPERS

BITUMASTIC
REG. U. S. PAT. OFF.
COATINGS AND ENAMELS

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 52

Primer of Trolley-Coach Facts

374 *Booklet No. GEA-6448* from the GENERAL ELECTRIC CO. outlines the advantages of the "trackless trolley" coach, explaining how riders are attracted by its reliable "on time" service and how the speed of the trolley coach helps relieve congestion. Charts and graphs point up the difference in operating costs, length of service, performance and public approval of the several types of vehicles. For your copy of the new booklet, write the company at 1 RIVER RD., SCHENECTADY, N. Y.

Cleans Catch Basins Quickly

375 Easily mounted on any short wheel base truck with 8 feet in back of the cab, the efficient Netco will clean up to 30 catch basins a day, hoisting up to 1,500 pounds. The Netco operates continuously using either an orange peel or a clamshell bucket. It is available from the NETCO DIV., CLARK-WILCOX CO., 118 WESTERN AVE., BOSTON 34, MASS.

Help for Water, Sewage Plants

376 You can bring new ease and economy to both water and sewage treatment by the installation of dependable Hardinge equipment. Included in this company's line are circular and rectangular clarifiers, thickeners, automatic backwash sand filters, digesters, and flocculators. Each is described in a separate bulletin. Write HARDINGE CO., INC., 240 ARCH ST., YORK, PA.

Fast, Inexpensive Snow Removal

377 Utilizing economical Caterpillar power, a Balderson snow plow will clear city streets of snow faster, cheaper and more efficiently. These plows are designed for Cat track-type tractors, and for motor graders and trucks of all makes. They are fully described in literature from BALDERSON, INC., WAMEGO, KANS.

For A Better Looking Community

378 Schools, municipal buildings, parks and recreational areas look their best with a well-kept lawn. A dependable source of attractive, weed-free turf is the O. M. SCOTT & SONS CO., MARYSVILLE, OHIO. This firm is now offering, without cost, over 100 *Lawn Care Bulletins*, assembled in one edition, explaining how you can get and maintain outstanding lawns.

Breaks Pavement, Tamps Backfill

379 Whatever your particular street construction or maintenance problem, it can probably be handled better, cheaper and faster with an Ottawa Hydra-Hammer. This self-propelled machine can be used to break concrete pavement, tamp backfill, cut asphalt, tamp rock or heavy aggregate, and compact blacktop patches. It is easily operated by one man. Get further details from the OTTAWA STEEL DIV., L. A. YOUNG SPRING AND WIRE CORP., OTTAWA, KANS.

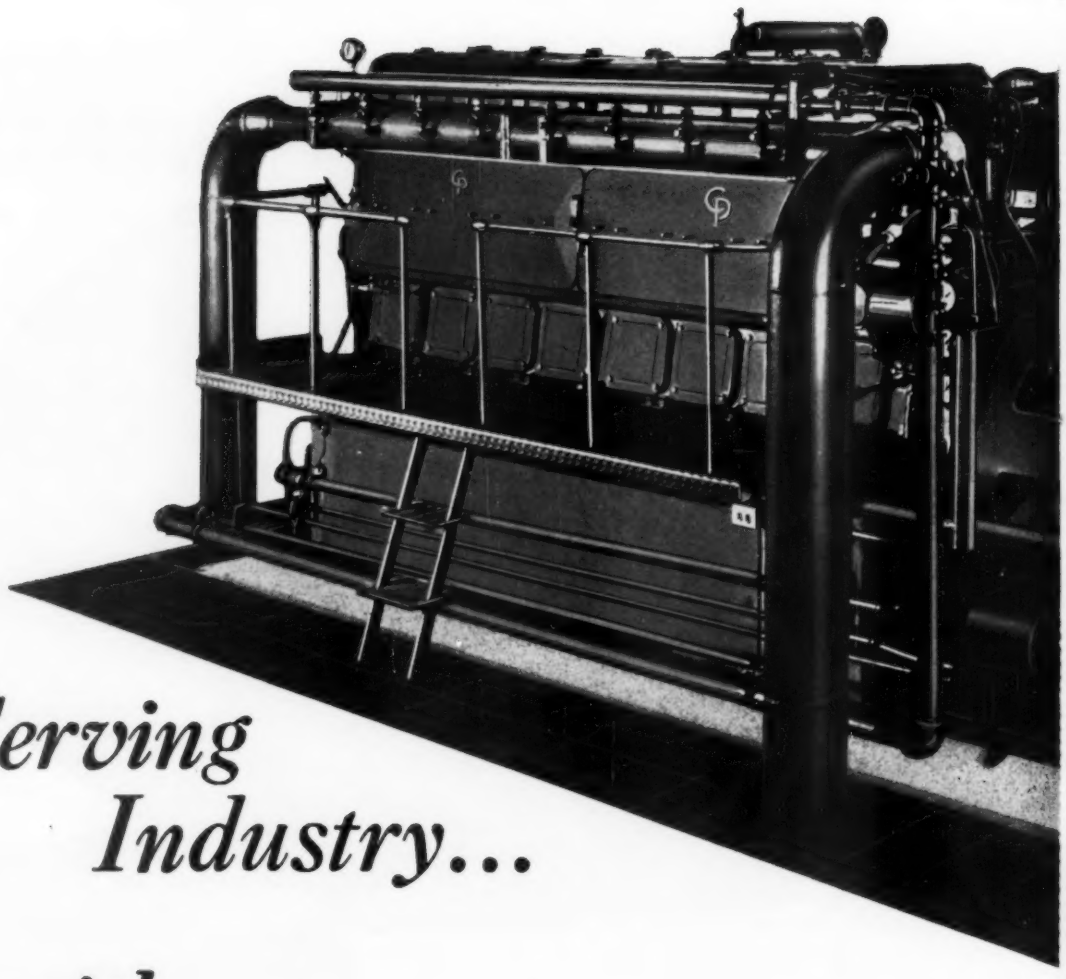
SKINNER-SEAL
SERVICE SADDLE

FOR MAKING
SERVICE CONNECTIONS
—QUICKLY, EASILY!

Made of malleable iron. Single massive bolt. All sizes, 1/2" to 12" inclusive. For steel, cast iron and Transite pipe.

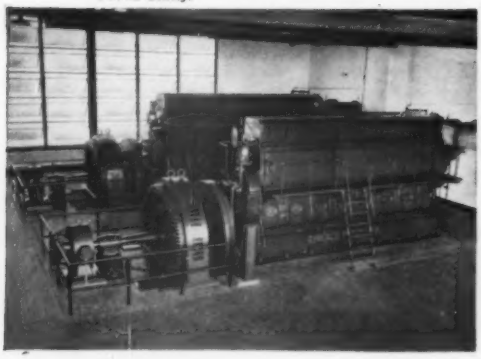
M. B. SKINNER COMPANY
SOUTH BEND 21, INDIANA, U. S. A.

SKINNER-SEAL SERVICE SADDLE

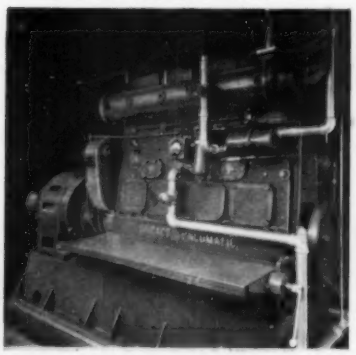


Serving Industry... with 'round the clock

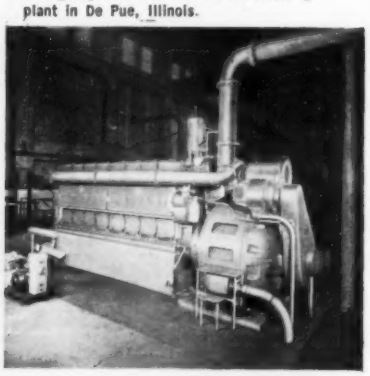
Two Chicago Pneumatic 1000 kw Diesel units furnishing power in a Midwestern Public Utility.

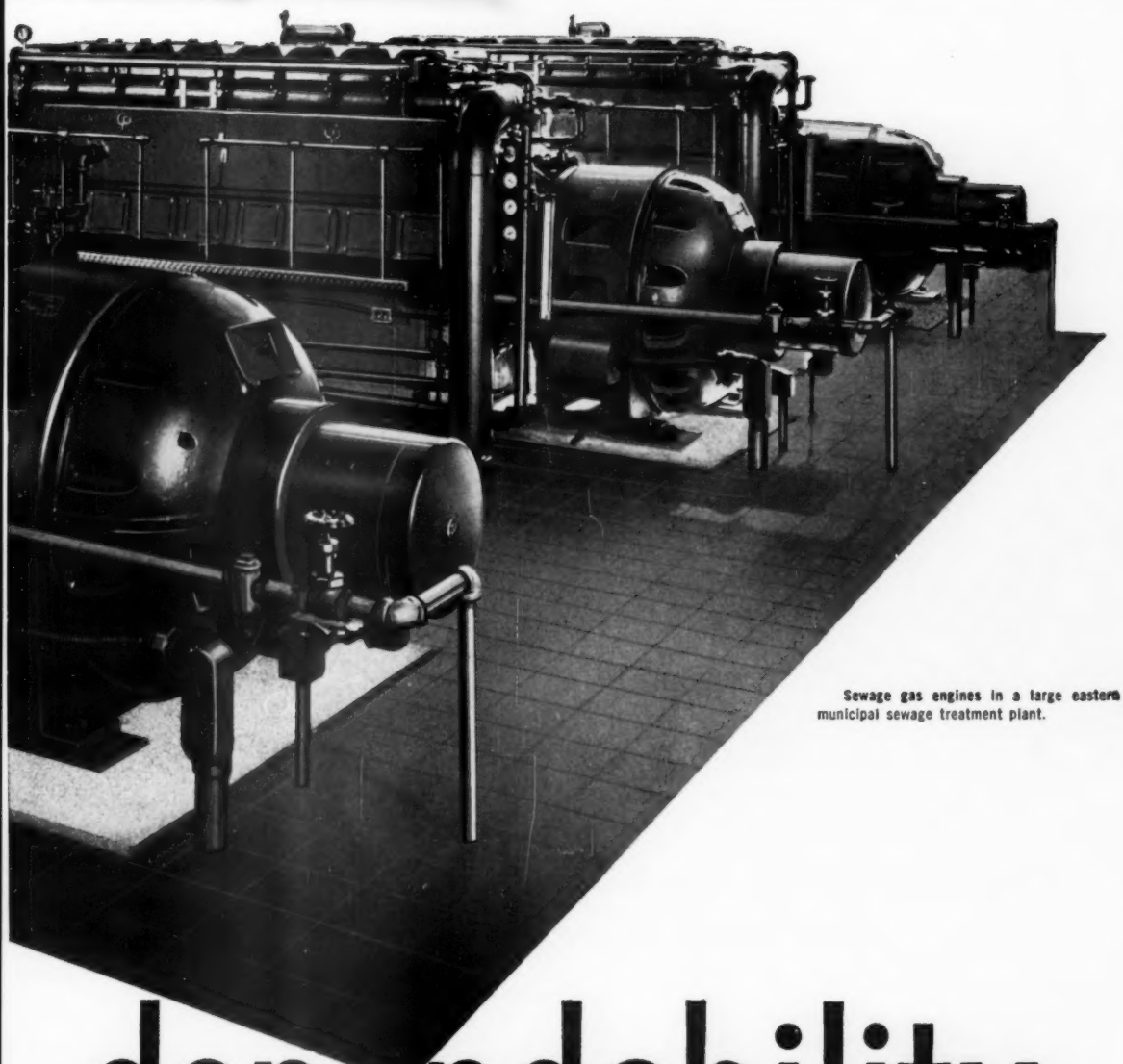


CP Slow Speed Dual-Diesel engine runs off waste sludge gas to furnish power for a Connecticut Sewage Treatment Plant.



CP 8-cylinder Diesel used as a standby emergency unit in a well known smelting plant in De Pue, Illinois.





Sewage gas engines in a large eastern municipal sewage treatment plant.

dependability

You can't beat Chicago Pneumatic Diesel, Dual-Fuel and Gas Engines for power, performance and dependability. Efficient CP engines are available in sizes capable of delivering from 120 HP to 2280 HP and in normally aspirated or supercharged models.

Chicago Pneumatic will be glad to work with you in preparing plans and specifications involving the CP engine best suited to fill your specific needs. For details, write *Chicago Pneumatic Tool Company. 8 East 44th Street, New York 17, New York.*

Chicago Pneumatic

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

Built to "take it," this low-cost Barber-Greene Ditcher cuts the cost of digging narrow trenches . . . proves that hand digging is no longer economical, even on the smallest jobs.

Digging from house to main at less cost than ever before

When laying pipe for service lines and other installations, utilities and contractors have had to contend with the high cost of digging and backfilling the required trenches.

The new Barber-Greene 702 Ditcher has solved this problem. Despite its small size, the 702 is the newest machine in the most rugged line of ditchers made.

Prior to this new development, available machines either dug too wide for practical and economical operation, or did not have the stamina and digability required for coping with unfavorable conditions.

Utilities, contractors and railroads are now gaining the advantages of underground lines and services in virtually every area of the country.

Applications, to date, include electric power and telephone lines and house services, railroad signal systems, traffic control systems, outdoor theater wiring, installations of small gas and water lines and services, lawn sprinkling systems and others.

Digs to 40" deep, 5" wide. The 702 can be easily towed or carried on a light truck. Simple-to-operate dual controls permit operation from seat or from side of machine for full view of trench.

Barber-Greene

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

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BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on Page 42:

289	297	305	313	321	329	337	345	353	361	369	377
290	298	306	314	322	330	338	346	354	362	370	378
291	299	307	315	323	331	339	347	355	363	371	379
292	300	308	316	324	332	340	348	356	364	372	
293	301	309	317	325	333	341	349	357	365	373	
294	302	310	318	326	334	342	350	358	366	374	
295	303	311	319	327	335	343	351	359	367	375	
296	304	312	320	328	336	344	352	360	368	376	

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

Name: (Please Print).....

Title: .....

Address: .....

..... 10-56

A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 223, as circled below:

870	875	880	885	890	895	900
871	876	881	886	891	896	901
872	877	882	887	892	897	902
873	878	883	888	893	898	903
874	879	884	889	894	899	904

I would also like to receive manufacturers' booklets on .....

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Name: (Please Print).....

Title: .....

Address: .....

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A Listing of Your Business Connection is Important

You can obtain manufacturers' literature by making use of these convenient Business Reply Cards!

Postage Will be Paid by Addressee

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BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 291, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

ONE OF THESE REPLY CARDS WILL BRING FULL DETAILS FAST ON ANY PRODUCT OR SERVICE MENTIONED OR ADVERTISED IN THIS ISSUE

Let us remember the mountains of Attica and not abandon our land

"There are mountains in Attica which can now keep nothing . . . but which were clothed, not so very long ago, with fine trees producing timber . . . while the country produced boundless pasture for cattle . . ."

As early as 300 B.C., when Plato thus lamented a tragedy of exhausted natural resources, there was little left of Attica's fertility — only insects crawling about the *"sites of extinct water supplies."* A lesson 2000 years old, to be heeded if we would escape the fate of Attica.

And the first logical step in vital water conservation is to replace flat, waste-conducive rates with Badger Metering.

The demand for water is at its peak in our history. All classes of users compete for more and *more*. A 75% increase in consumption is expected by 1975. In some areas the situation is already critical.

Curtailing waste with Badger Meters — fairly apportioning the responsibility and accounting for water use — is not only a sound investment in your community's future, but essential to its very survival.

The time to act is now — while there's still some water left to save! Write today for information on Badger Meters, or to arrange for a representative to call.

Badger Water Meters

Badger Meters have conserved it for 50 years

BADGER METER MFG. CO. MILWAUKEE 45, WISCONSIN

Public works budgets

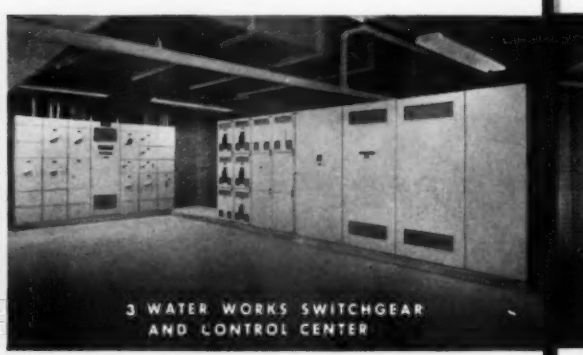
As a planner of public works, you know what it means to be in the middle, between a demanding public on one side and budgets shrunk by increasing costs on the other.

Westinghouse can help you get the most out of each shrinking dollar in a realistic way. First, by providing everything you need electrically in one integrated line. It's simpler, surer, that way.

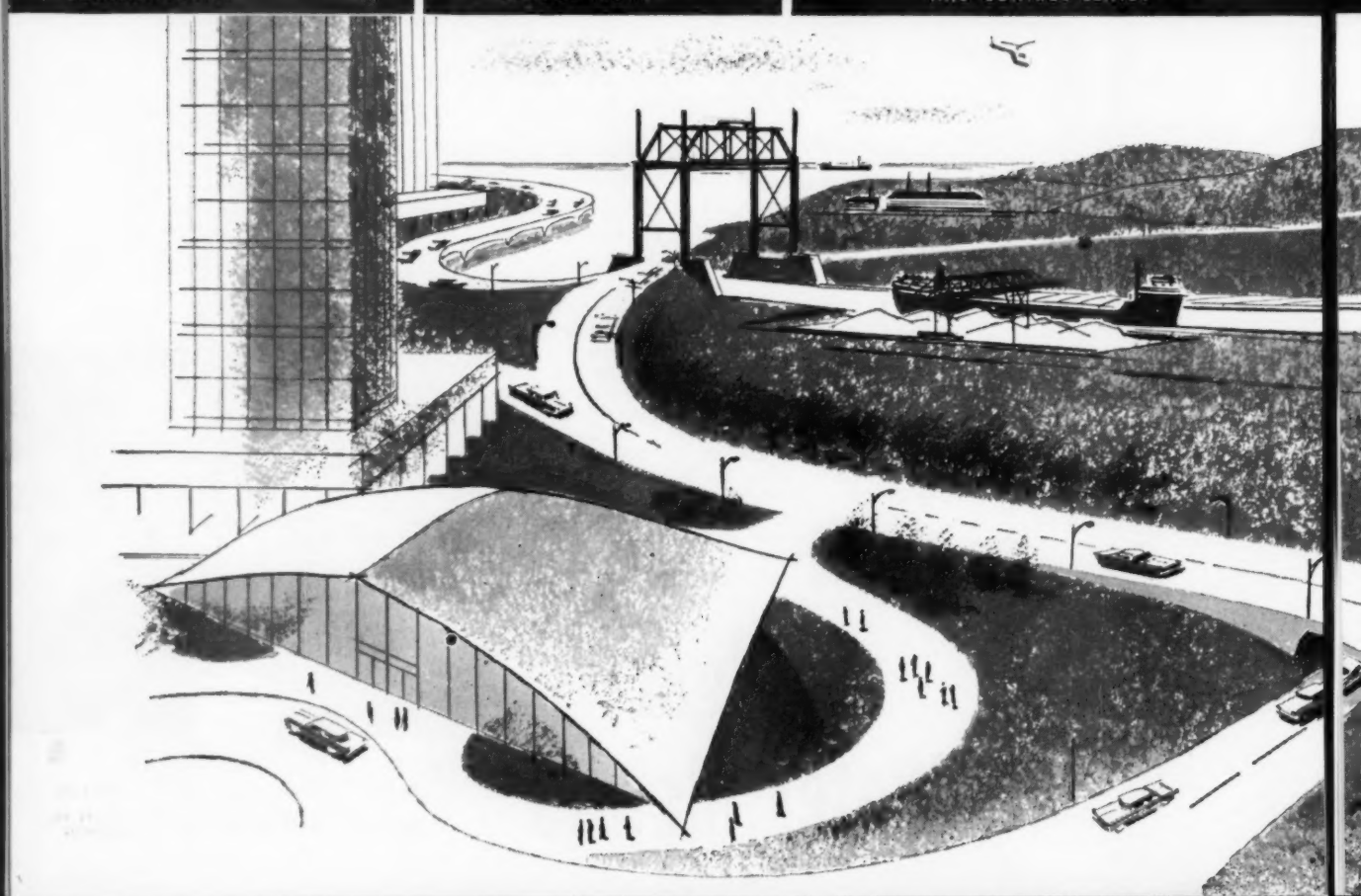
Further, by making available a specialist engineer on problems of power distribution for all kinds of

1 SEWAGE SYSTEM SWITCHGEAR — CONTROL CENTER

2 CONTROL CENTER FOR SEWAGE PLANT



3 WATER WORKS SWITCHGEAR AND CONTROL CENTER



can be stretched electrically

projects, motor applications, controls of every type, interior or area lighting, street, highway, and interchange lighting . . . anything electrical.

There is a Westinghouse electrical construction engineer in your area who will head up a team of such specialists when you or your consultants want help on electrical specs that will stretch the budget. He's as close as your telephone. Call him. Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pa.

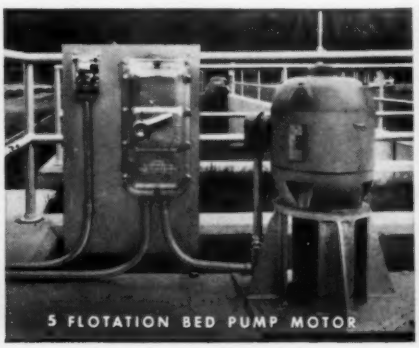
J-94063

1. This close-coupled assembly of Westinghouse "drawout" switchgear and control center serves the modern sewage treatment plant at Bloomsburg, Pa. 2. Another control center at Bloomsburg. All units were factory-assembled and pre-wired. 3. Incoming power for the Houston, Texas, water purification plant is received in the 1000-kva, 4160/480-277 volt power center at right. Power control at left has 480-277 volt power section, 150-kva dry-type transformer and a 120/208 volt lighting section. 4. 1000-hp Westinghouse motor driving a compressor for vehicular tunnel air system. 5. Vertical-type circulating pump for flotation beds in a Cincinnati, Ohio, sewage plant driven by Westinghouse Life-Line® motor. 6. Brilliant nonglare lighting in Bank Street Tunnel, Seattle, Washington, using Westinghouse fluorescent fixtures and tubes.

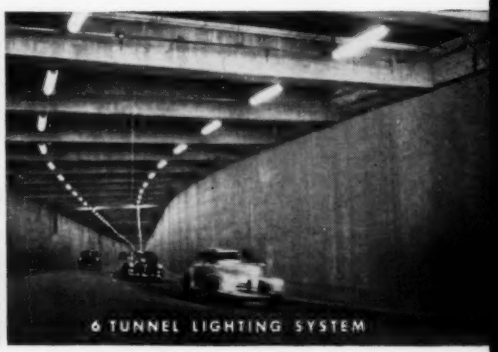
WATCH WESTINGHOUSE!

COVER THE PRESIDENTIAL CAMPAIGN ON CBS TELEVISION AND RADIO!

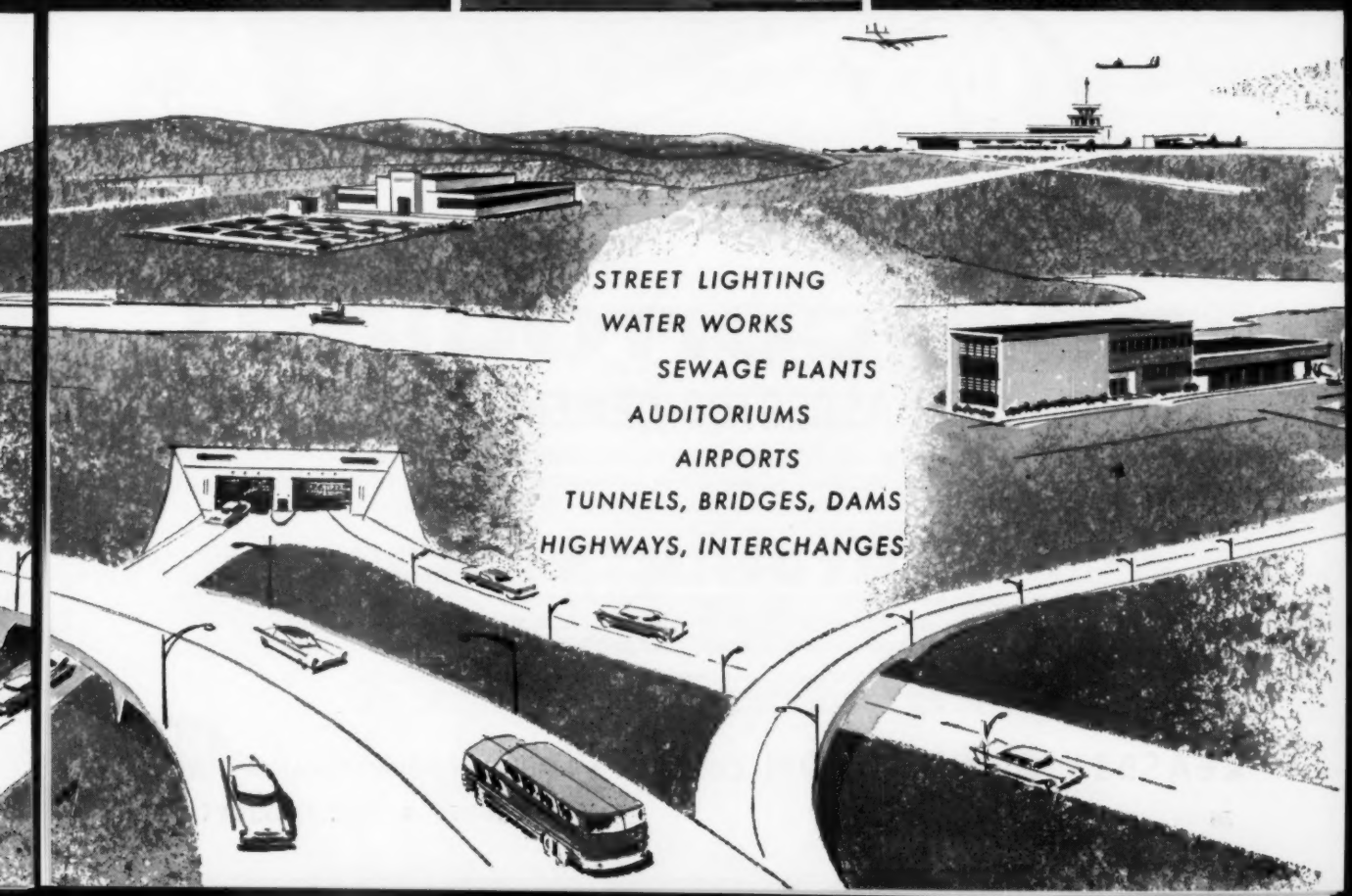
4 COMPRESSOR MOTOR — TUNNEL AIR SYSTEM



5 FLOTATION BED PUMP MOTOR



6 TUNNEL LIGHTING SYSTEM



IN WITH THE NEW! "Century" Asbestos-Cement Pipe ready and able to replace more than 10 miles of a metallic pipeline weakened by external corrosion for the Jefferson County Fresh Water District #1, Sabine Pass, Texas.

Soil conditions led to the switch to non-corrosive "Century" Asbestos-Cement Pipe. Contractor: Hardin Construction Company, Houston, Texas.

non-corroding!

K&M "Century"® ASBESTOS-CEMENT PRESSURE PIPE

Throughout the country more and more communities are relying on water mains of K&M Asbestos-Cement Pipe . . . made of asbestos fiber and portland cement. It resists corrosion, is non-electrolytic, two of the many advantages which make for durability.

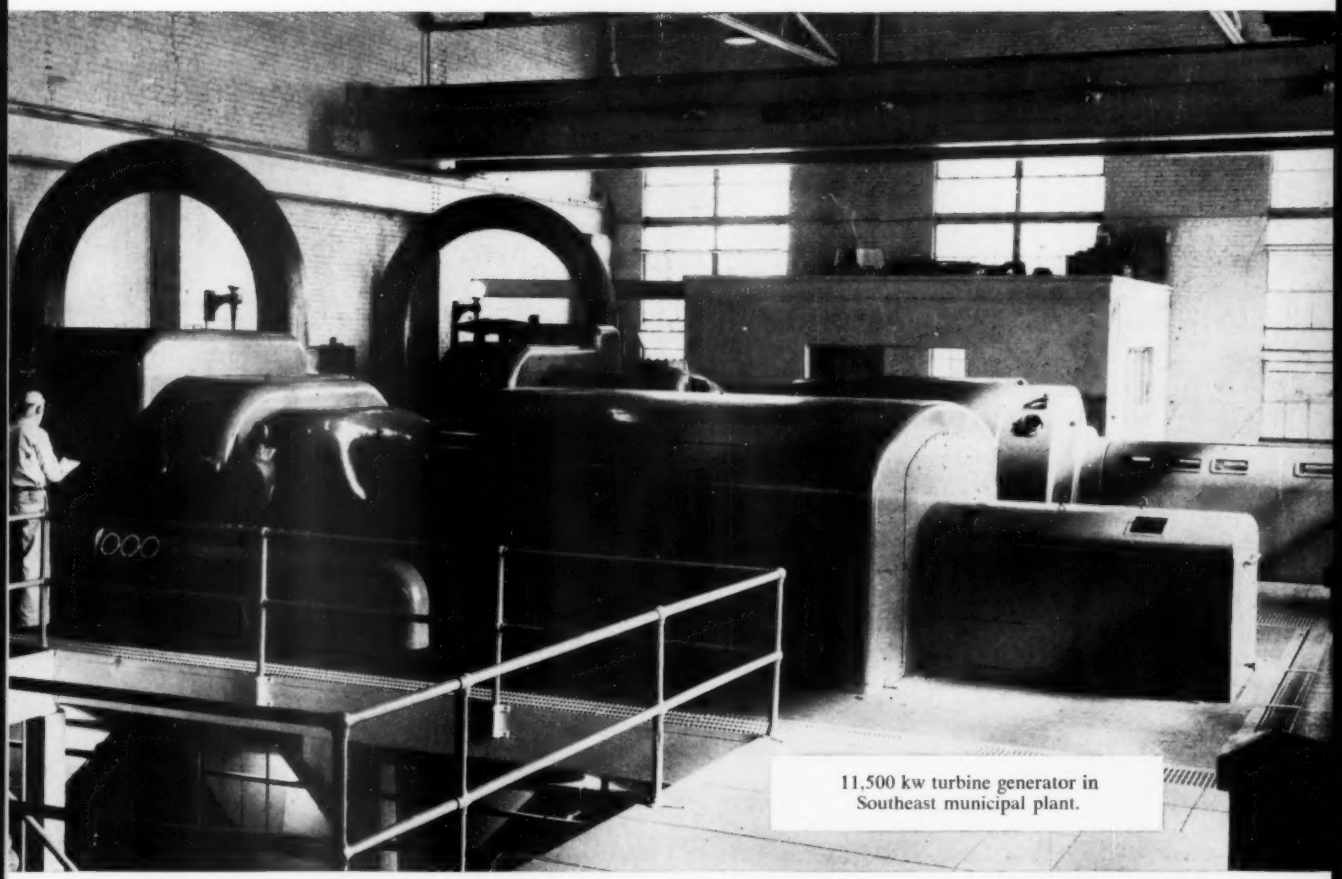
Pumpin' costs low and stable! There is no clogging to reduce flow and increase pumping costs with K&M Asbestos-Cement Pipe. It is non-metallic . . . non-tuberculating. Its bore remains smooth and clean.

Lower in initial cost! K&M Asbestos-Cement Pipe is light in weight—easily and inexpensively transported, stored and handled.

ENGINEERS WANTED—Career opportunities open for men qualified in product development, machine design, automation, plant management, plant engineering and applied research. Write to Director of Engineering, Keasbey & Mattison Company, Ambler 5, Pa.

KEASBEY & MATTISON COMPANY • AMBLER • PENNSYLVANIA

K&M best in asbestos®



11,500 kw turbine generator in Southeast municipal plant.

Specializing in turbine generators up to 15,000 kw gives you better product service

Take priority, for example. Because Worthington is not involved with building the huge central station turbine generators, they give A-1 priority to the design and manufacture of industrial and municipal units.

Every Worthington turbine generator receives the personal attention of top engineering and manufacturing personnel. Skilled craftsmen, with years of experience in the manufacture of turbine generators, take pride in their job of building reliability into every part. They take the time and trouble to take care of the little things that mean so much to dependable operation. Their attention to detail is reflected in such things as the dials which are recessed and mounted at an angle for easy reading. And before it is allowed to leave the factory, every unit is completely assembled and meticulously tested.

When considering a turbine generator installation up to 15,000 kw, call on the *specialists* in the field. Get in touch with your nearest Worthington District Office or write for Bulletin 1960C. Address Section T63, Worthington Corporation, Harrison, N. J.

T-63

WORTHINGTON

Saw Mill Parkway in Westchester County, New York, was the hardest hit of all thoroughfares. HAPCO Aluminum Poles were swamped with flood waters from the overflowing Saw Mill

HAPCO Aluminum Poles

When the year's worst storm hit, dashing seven inches of rain in a three day period on the Yonkers, New York area, parkways were swamped, roadbeds demolished, bridges washed out.

Lighting losses were kept to a minimum because highway planners specified HAPCO Aluminum standards and brackets. HAPCO Aluminum lighting equipment retains its original strength and beauty under the most adverse weather and atmospheric conditions. It requires no initial or maintenance painting, offers the highest resistance to rust and corrosion.

River, yet remained in service without special maintenance. Note luminaires are still in service.

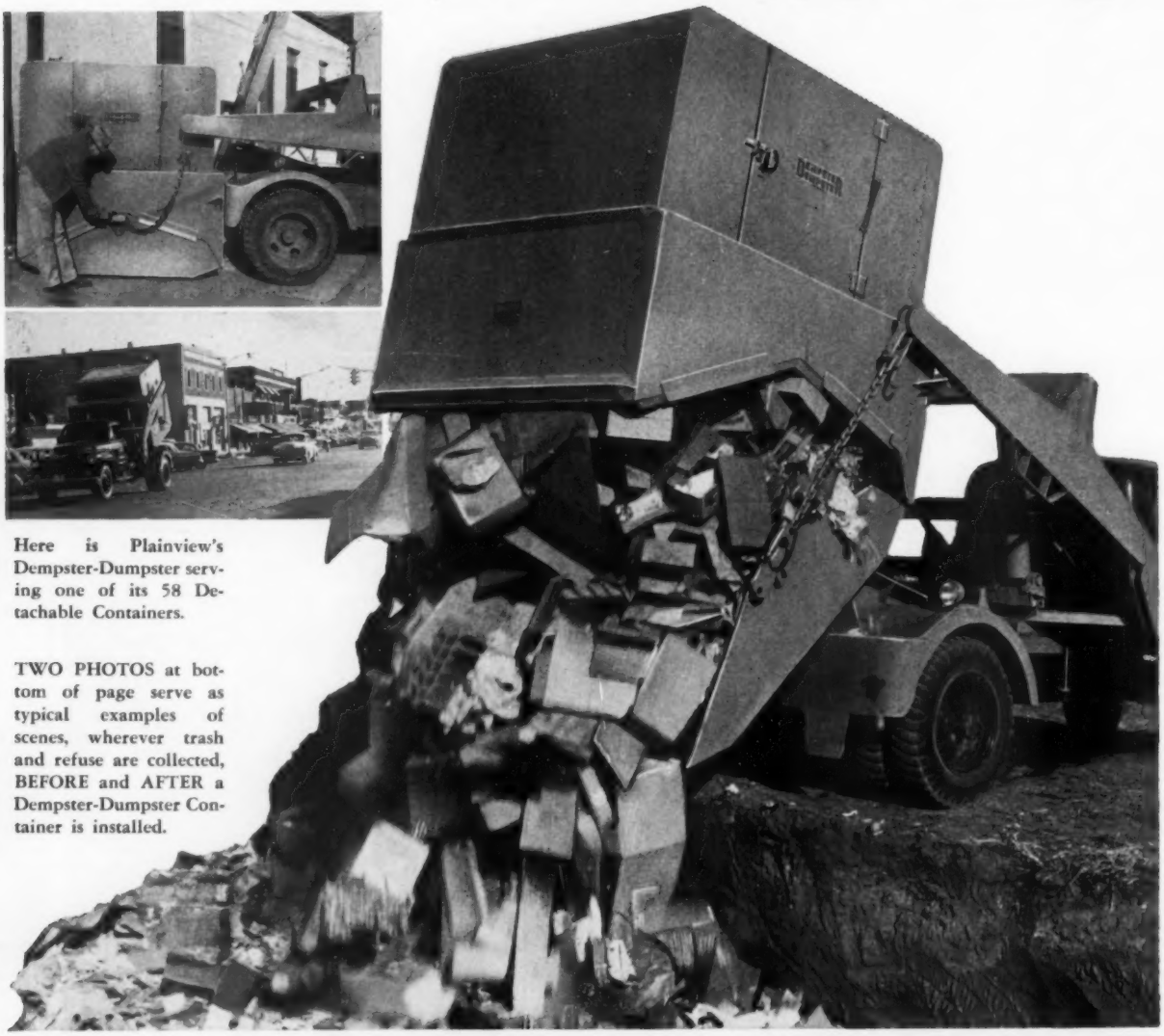
Stand Firm in Heavy Flood

Since HAPCO poles are lightweight, they install faster, easier, you begin saving money as soon as you buy. There is a HAPCO pole designed for every outdoor lighting application. Complete information is presented in Catalog HAL-754. Write for your copy today.

HUBBARD

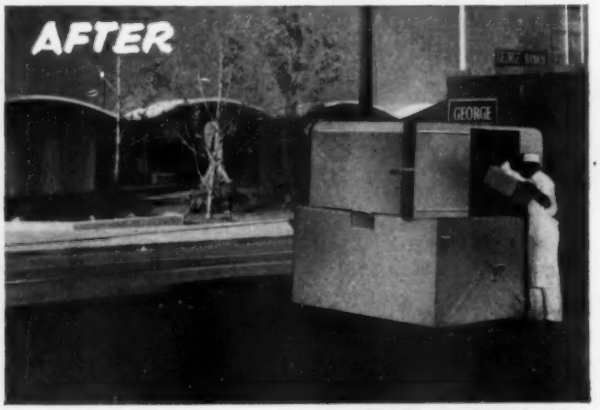
ALUMINUM PRODUCTS COMPANY
Division of Hubbard and Company
Pittsburgh 1, Pa.

Look what's happening



Here is Plainview's Dempster-Dumpster serving one of its 58 Detachable Containers.

TWO PHOTOS at bottom of page serve as typical examples of scenes, wherever trash and refuse are collected, BEFORE and AFTER a Dempster-Dumpster Container is installed.



DEMPSTER

5115

to bulk refuse collection!

Cities, large and small, installing Dempster-Dumpster System featuring large capacity fire-proof, scavenger-proof steel Detachable Containers. Scores of them handled by only one man . . . cutting cost tremendously!

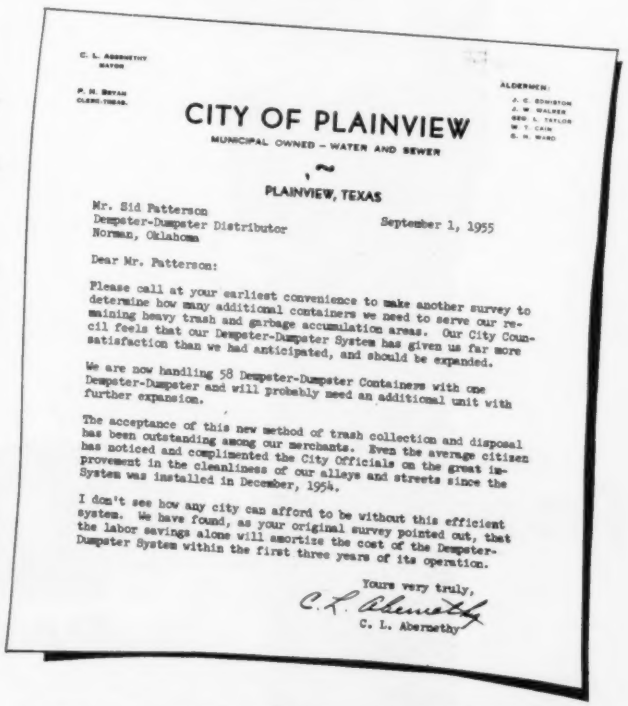
THERE IS A WAY to eliminate your bulk refuse handling problem . . . open cans, crates and boxes with overflowing refuse . . . rats feeding on it . . . wind scattering loose rubbish . . . dogs and cats munching in the mess . . . flies buzzing around the stuff—a costly potential in disease and fire hazards alone in damage to persons and property. And, the equipment and labor cost of collection is tremendous. There's a simple, economical and nationally recognized solution to this problem. Big steel Dempster-Dumpster Containers located at convenient bulk refuse accumulation points—each equivalent to 75 ordinary trash cans—in your business areas . . . in housing and apartment areas . . . at schools, hospitals, etc. Scores of them—25, 30, 40, 50—served on schedule by only one man, the driver of your truck-mounted Dempster-Dumpster.

You can understand why officials like Mayor Abernethy of Plainview say: "I don't see how any city can afford to be without this efficient system." Praiseworthy satisfaction is the result in other cities—Borger, Pampa, Odessa and Lubbock in Texas, for instance. Atlanta . . . Baltimore . . . Davenport, Iowa . . . Henderson, Ky. . . . Jackson, Tenn. . . . Lakeland, Fla. . . . Wilmington, N. C. . . . Richmond, Va. . . . Rochester . . . New York City . . . Denver . . . Montgomery, Ala. . . . Wyandotte, Michigan and many, many others.

Invariably, wherever this system is installed, one finds immediate praise of an outstanding improvement from merchant users and citizens alike. Without question, the Dempster-Dumpster System is recognized as the most sanitary and lowest cost method of bulk refuse collection ever devised. Ask us to send you complete information. Write today! Manufactured exclusively by Dempster Brothers, Inc.

"How can any city do without it --" says Plainview's Mayor Abernethy.

Wherever the Dempster-Dumpster System is in use, satisfaction beyond that anticipated is the same as expressed here by Mayor Abernethy. Your city, too, can save thousands of dollars and, at the same time, eliminate fire and health hazards and improve the cleanliness and appearance of your heavy producing districts with this amazing system. A survey of your bulk refuse collection may be arranged without obligation.



C. L. ABERNETHY, MAYOR
P. H. BRYAN, CLERK-TREAS.
ALDERMEN: A. C. BONNSTON, J. W. WALKER, GEO. L. TAYLOR, W. T. CAIN, E. H. WARD

CITY OF PLAINVIEW
MUNICIPAL OWNED – WATER AND SEWER
PLAINVIEW, TEXAS

Mr. Sid Patterson
Dempster-Dumpster Distributor
Norman, Oklahoma

September 1, 1955

Dear Mr. Patterson:

Please call at your earliest convenience to make another survey to determine how many additional containers we need to serve our remaining heavy trash and garbage accumulation areas. Our City Council feels that our Dempster-Dumpster System has given us far more satisfaction than we had anticipated, and should be expanded.

We are now handling 58 Dempster-Dumpster Containers with one Dempster-Dumpster and will probably need an additional unit with further expansion.

The acceptance of this new method of trash collection and disposal has been outstanding among our merchants. Even the average citizen has noticed and complimented the City Officials on the great improvement in the cleanliness of our alleys and streets since the System was installed in December, 1954.

I don't see how any city can afford to be without this efficient system. We have found, as your original survey pointed out, that the labor savings alone will amortize the cost of the Dempster-Dumpster System within the first three years of its operation.

Yours very truly,
C. L. Abernethy
C. L. Abernethy

BROTHERS 8106 Dempster Bldg., KNOXVILLE, TENNESSEE

Talk about meter

LIFE EXPECTANCY!

LIKE low maintenance, the true life of parking meters is a matter of first importance to budget-conscious community officials. Why? Because *long-lived* meters mean *more net revenue dollars* that can be allocated to relieving traffic and parking problems.

We'll let these facts speak for themselves . . .

According to a recent nation-wide study, meter life averages *less than 10 years!*

But 46% of all Dual meters installed *before* 1943 *are still in operation!*

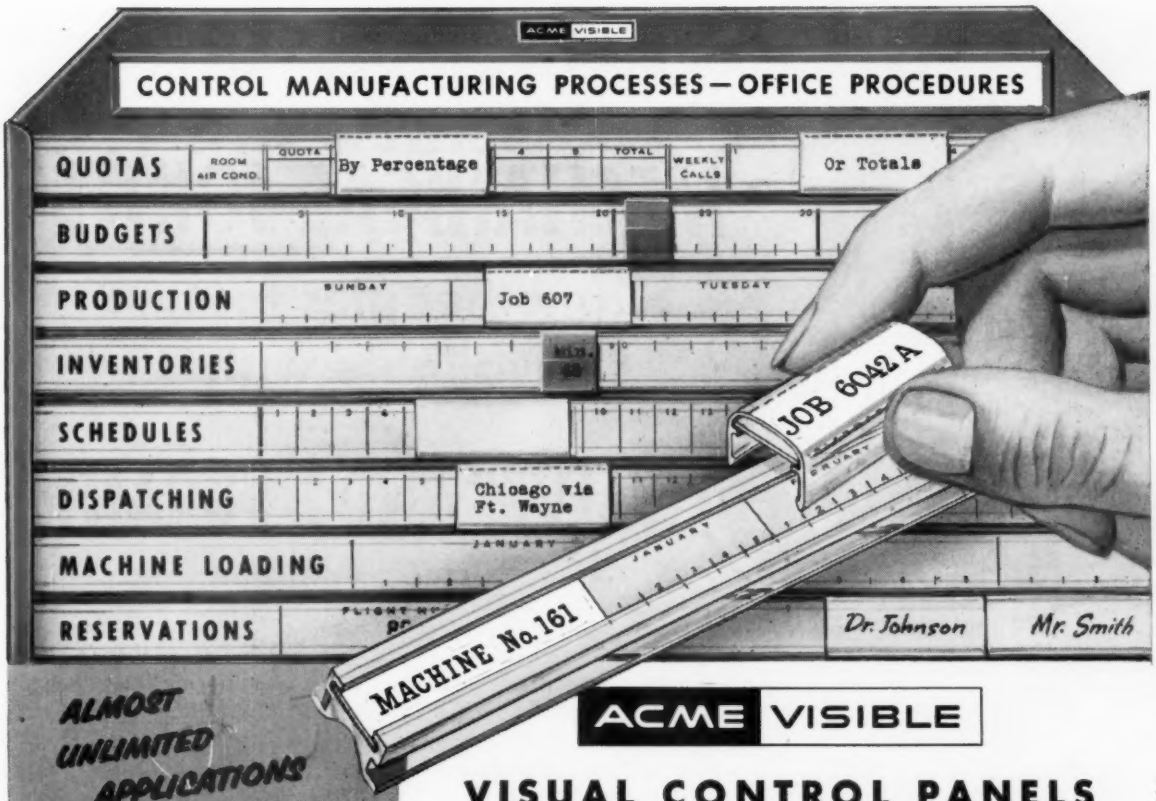
This year, 2042 Duals celebrate their *18th birthday!*

75% of all Dual meters installed 'way back in 1937 are *still* operating!

And there's plenty *more* proof that Duals are your best choice for on-street or off-street use . . . for *any* parking requirement! Write today for helpful bulletins on SINGLE or DUBL-DUAL meters. Write to *The Dual Parking Meter Company* (Subsidiary of The Union Metal Manufacturing Co.), *Canton 2, Ohio.*

For ex[illegible] value get **DUAL**

PARKING METERS



ACME VISIBLE

VISUAL CONTROL PANELS

Chart Action, Indicate Trends, Show Results, Permit Comparison, Picture Organized Facts for Analysis and Decision.

Complete flexibility with limitless signalling and charting possibilities . . . Easily adapted to your individual record requirements.

Lightweight panels contain clear plastic tubes which are individually removable and may be shifted from one position to another . . . Clarity of tube provides full legibility of contents.

Signals snap on or off at any point . . . Hold position until positively moved . . . Slide smoothly back and forth . . . By-pass freely.

Insertable index feature afford triple signalling potential: by position, by color and by legend of index.

Ask the man from Acme to show you examples—

ACME VISIBLE RECORDS, INC. CROZET, VIRGINIA

F1056

☐ Send us more information on Visual Control Panels.

☐ We are interested in Acme Visible equipment for _____ records.
KIND OF RECORD

☐ Have representative call. Date_____ Time_____

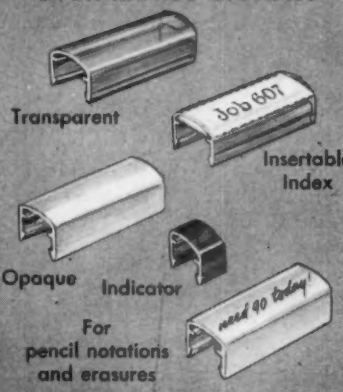
Company_____ Attention_____

Address_____

City_____ Zone_____ State_____

ALMOST UNLIMITED APPLICATIONS

OVER-RIDING SIGNALS



TUBE INTERIOR SIGNALS

Panels Contain 25, 50 or 100 Tubes Available in 11, 30, and 40 inch widths

MECHANICAL JOINTS

...another plus feature available with

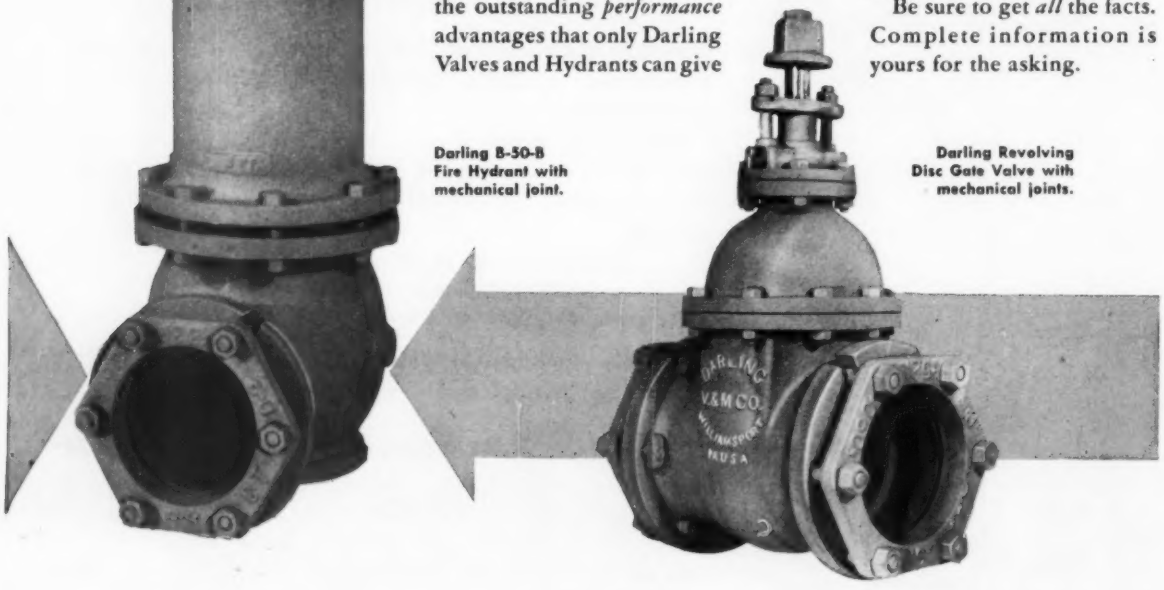
TRADE DARLING MARK

VALVES AND HYDRANTS

DARLING mechanical joint valves and hydrants are built to approved standards and provide all the recognized advantages —such as simple, fast installation with no special skills required . . . and assurance of tight joints.

But whether or not you require mechanical joints, don't forget the outstanding *performance* advantages that only Darling Valves and Hydrants can give you. For example, there's Darling's revolutionary B-50-B packless dry-top hydrant development with its ball-bearing operation and "O" ring seals. And in gate valves, Darling's fully revolving double disc, parallel seat principle . . . for long life, low maintenance and unmatched operating ease.

Be sure to get *all* the facts. Complete information is yours for the asking.



Darling B-50-B Fire Hydrant with mechanical joint.

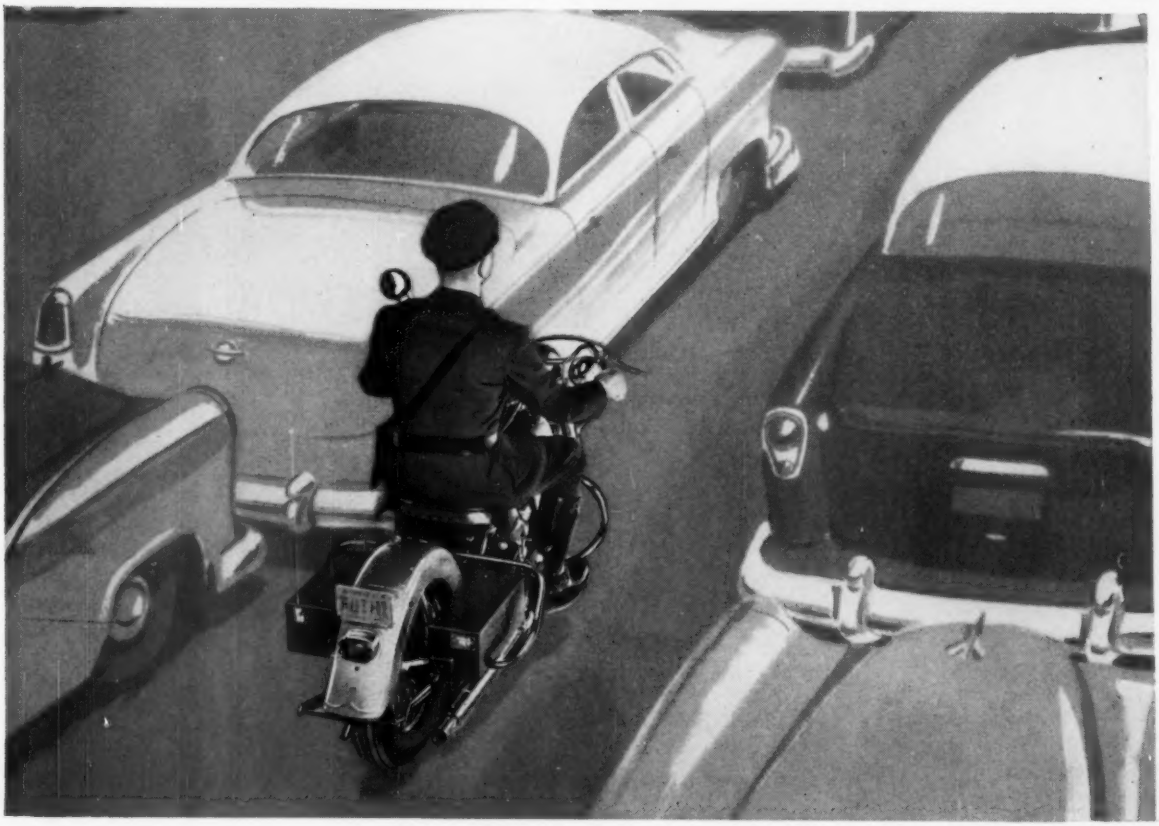
Darling Revolving Disc Gate Valve with mechanical joints.

DARLING VALVE & MANUFACTURING CO.

Williamsport 10, Pa.

Manufactured in Canada by The Canada Valve & Hydrant Co., Ltd., Brantford 7, Ont.

Move with traffic... keep it under control



Harley-Davidson motorcycles give you "go anywhere" mobility

The Solo-mounted motorcycle officer moves with the tide of traffic — pacing it or whisking down narrow lanes to reach developing trouble spots. If necessary, he can even wheel down the sidewalk to by-pass jammed-up cars, solve small snarls — before they get big.

What's more, because the mounted officer is "out in the open," easy to see — he's a constant reminder to motorists to stay alert, obey the laws.

Reports show that in city after city, Harley-Davidson motorcycles are being credited with helping keep traffic casualties down. Why not write for details, find out what fast, rugged and dependable Harley-Davidsons can do in your situation. HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wisconsin.

New free booklet just out...

Write or ask your dealer for your copy of the 16-page booklet—More Effective 'Round-the-Clock Police Power with Harley-Davidson Motorcycles. It's yours for the asking.

HARLEY-DAVIDSON police motorcycles

NOW! 12½ Kilowatts You Can Take Anywhere!

New ELECTRALL®—exclusive on INTERNATIONAL TRUCKS

This is the latest in quick, sure portable power for every electrical purpose—115 to 230-volts, single or 3-phase power for motors up to 10 horsepower.

The new ELECTRALL generator is driven by the truck's power take-off. It requires no separate fuel, oil or maintenance. Takes very little body space. Easy to remove, too.

It's an INTERNATIONAL exclusive—factory-installed as optional equipment on model S-120, S-130 pickups and the four-wheel-drive S-120 (4x4).

Call your INTERNATIONAL Dealer or Branch for a demonstration, today.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

World's Most Versatile Portable Power

- Operates chain saw for tree trimming
- Powers air compressor for pavement breakers and tree sprayers
- Operates sewer repair equipment
- Operates cement mixers
- Supplies current for welding and soldering equipment
- Powers bus and trolley repair equipment
- Operates post hole diggers
- Powers electric lawn mowers and weed cutters

Emergency Power, Too

- Supplies current for flood lights
- Operates sump pumps
- Powers inhalators
- Supplies current for medical uses
- Operates radio transmitters and receivers

INTERNATIONAL® TRUCKS

All-Truck Built to save you the BIG money!

Motor Trucks • Crawler Tractors • Construction Equipment
McCormick® Farm Equipment and Farmall® Tractors

Wherever building codes are written to protect public health

CLAY PIPE IS SPECIFIED

In communities all over the nation, there's a movement to improve and modernize plumbing codes for greater public health protection. It's strictly a local problem, as it should be, and the recommendations of local people carry a lot of weight. That's why you find Vitrified Clay Pipe named as the standard of quality in so many of these codes. Clay Pipe is traditionally the "plumbing code pipe." It is specified to save time and labor on jobs, and to assure public health protection that never wears out. Today, as the Clay Pipe industry produces a new, longer, stronger product, with a variety of root-proof joints, Clay Pipe is more than ever before a time-tested companion to the good workman's skill.

Vitrified CLAY PIPE (CLAY PIPE NEVER WEARS OUT!)

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1820 N. Street, N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
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LOOK at what's new in public works equipment and—every time—you'll be sure of the greatest efficiency if you go WHITE 3000!

That's the report from municipalities across the country. That's the word at this year's Public Works Congress in Fort Worth.

The WHITE 3000 is engineered to exact operating conditions and specifications for all applications shown—and many more!

Why not discuss your equipment program with your White Representative? You'll get latest transportation equipment information... most practical, efficient application... the best in performance and service for your public services... for years to come.

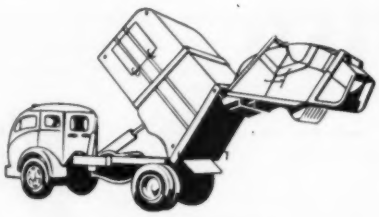
THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

FIRST—IN THE FIELD

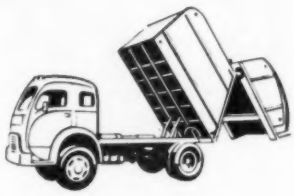
White 3000

PROVED ON BILLIONS OF LOW-COST MILES

FOR MORE THAN 55 YEARS
THE GREATEST NAME IN TRUCKS



LEACH PACKMASTER



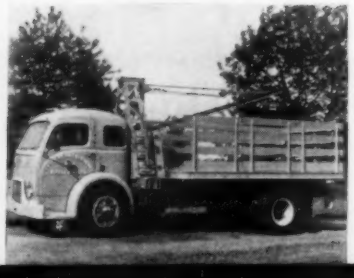
HEIL COLECTOMATIC

IDEAL TRUCK FOR ALL THESE OTHER

RUBBISH COLLECTION

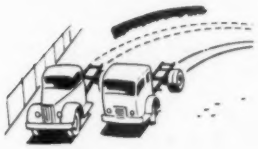
AERIAL UNIT

STAKE—WINCH



LINE UNIT

MODERN, FUNCTIONAL ADVANTAGES OF THE WHITE 3000 MAKE IT TOMORROW'S TRUCK TODAY . . . *in public service!*



Unmatched maneuverability!

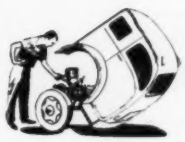
Wider tread front axle, shorter turning radius and short wheelbase save maneuvering time in congested streets and alleys . . . cut traffic time. That means longer routes serviced—more work done!

Roomy cab saves time and steps!

Easy in . . . easy out . . . either side! No doghouses. Plenty of space for three. Low-level cab saves steps and time . . . gets more work done in less time. Functional design adds to life of truck.

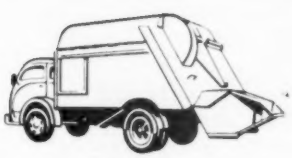
Ideal visibility —maximum safety!

Driving ease—especially in traffic and congestion—reduces bumps and accidents. Excellent visibility! In every way its design means greater safety every hour of the day.

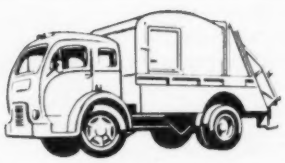


White quality, too, in every feature!

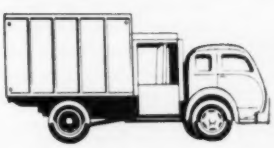
The exclusive power-lift cab is typical of White Quality and modern design . . . in every feature. It's engineered for dependable performance, year after year!



ROTO-PAC



GAR WOOD LOAD-PACKER



HYDEPAK

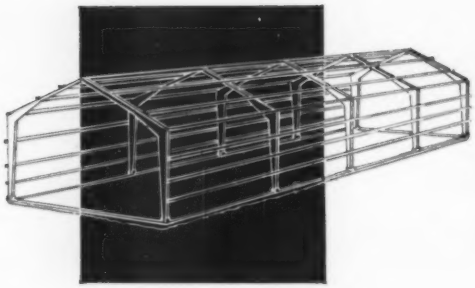
PUBLIC SERVICE APPLICATIONS . . .

STREET FLUSHER

STREET REPAIR

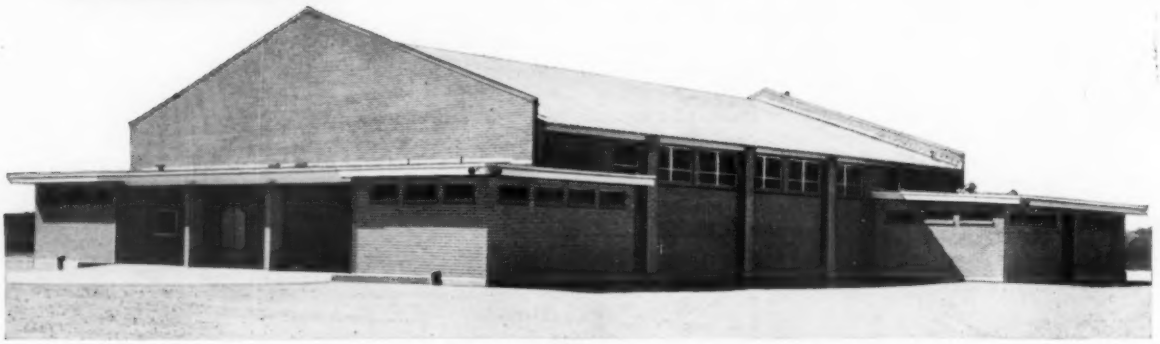
SNOW PLOW—DUMP

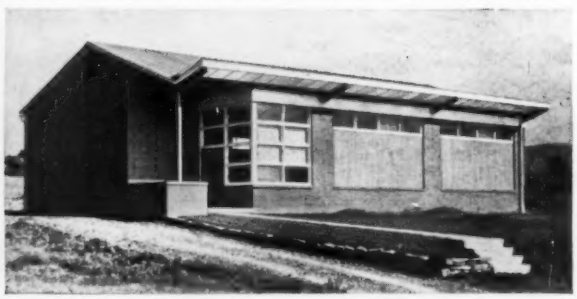
GARAGE TOW TRUCK



NOW!

it actually costs less to build faster...





when you assign the job to your **Butler Builder** and the **BUTLER BUILDING SYSTEM**

In just days after your foundation is set—your new building is under roof—when your Butler Builder takes over your building problems. He uses the Butler Building System. That means a basic steel structural system pre-engineered to meet code requirements—mass-produced in sizes to cover any desired area.

It means lower engineering costs—a faster start—lower structural costs. The Butler frame-and-roof system takes only days to complete. Final interior finishing is weeks ahead of conventional construction. The Butler basic frame system carries the roof and wind loads. This means economical curtain exterior walls and light, movable partitions inside.

Construction costs and materials are lower when you use the Butler Building System. Your capital is tied up for less time. Your new building is earning its keep much sooner. That can add thousands of dollars in additional income.

Investigate the Butler Building System before you invest a single dollar in new construction. Your Butler Builder is listed in the Yellow Pages — or write direct to Butler for his name and address.

BUTLER STEEL PRODUCTS

For prompt reply address office nearest you:

BUTLER MANUFACTURING COMPANY
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Manufacturers of Steel Buildings • Oil Equipment • Farm Equipment • Dry Cleaners Equipment • Outdoor Advertising Equipment • Special Products
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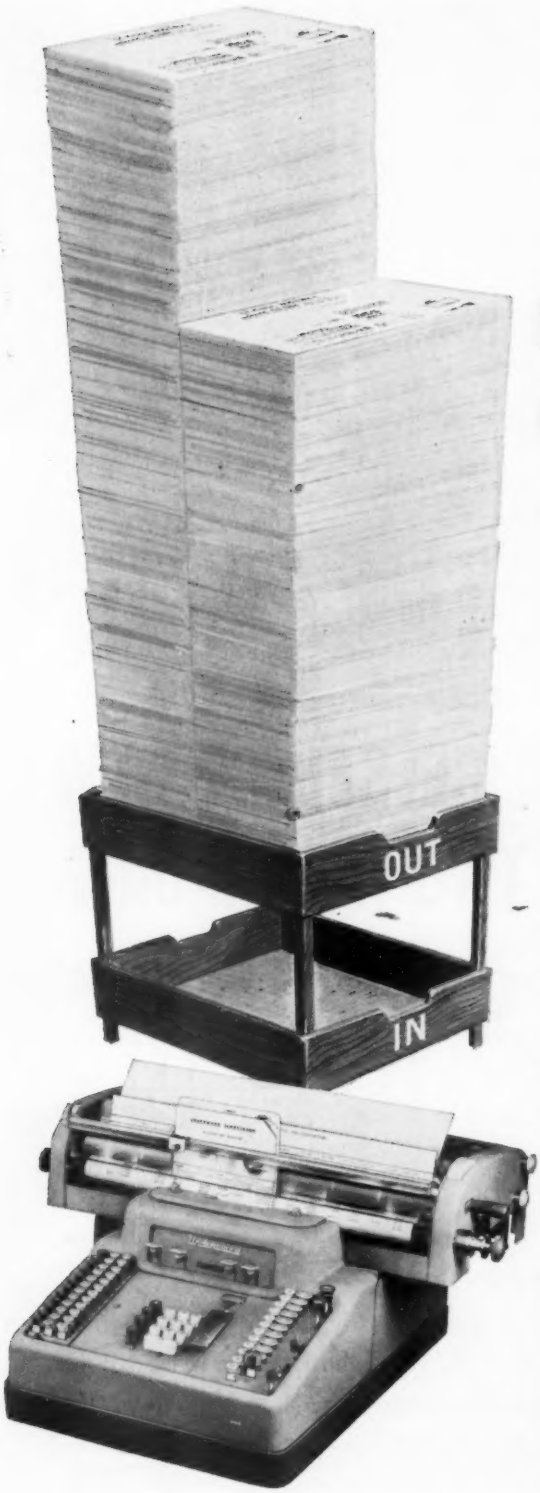

Now—a fast, easy way to meet tax billing deadlines . . . with Underwood Sundstrand Tax Billing Machine!

Fast? Just as fast as fingers can fly over the compact, touch-operated 10-Key Keyboard.

Easy? Even untrained personnel develop real proficiency in just a few minutes! Fully automatic pointing-off, locked-in multipliers and full cent adjustments mean more accuracy, too!

Versatile? In seconds you can switch from Tax Billing to Collections, Delinquency Notices, Appropriations . . . and all other essential accounting jobs such as Water Billing, Payroll and Accounts Payable!

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New York 16, N. Y.

Please send me full information on the Underwood Sundstrand Tax Billing Machine.

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UNDERWOOD UNDERWOOD **CORPORATION**

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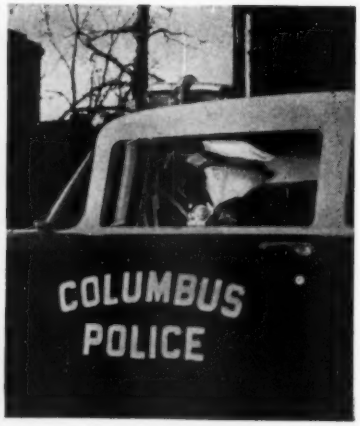


New G-E Progress Line Radios Are Now Serving With Ohio's Capital City Force

COLUMBUS, OHIO POLICE SELECT NEW GENERAL ELECTRIC TWO-WAY RADIOS

The Division of Fire and Police Communications, City of Columbus, Ohio, is nerve center of a radio network linking more than three hundred vehicles. A combination of 250-watt and 60-watt base station transmitters, spotted conveniently throughout the city, speed signals to this fleet on a 24-hour basis.

Progress Line Dependability

Progress Line two-way radios are going on duty with cities all over America. General Electric Plug-in-Chassis design means faster servicing, interchangeable chassis permits switching of equipment between vehicles—even between 6 and 12-volt d.c. systems. Simultaneous monitoring of 2 channels from one radio and Tone Signal Calling are other Progress Line advantages.

2-WAY MOBILE RADIO
FREQUENCY STABILITY & SELECTIVITY guaranteed for life!

Investigate The New G-E Progress Line

Your G-E Communications Counselor can show you the advantages you get when you "go G.E." Call him in, or write to: *General Electric Company, Communication Equipment, Section X10106, Electronics Park, Syracuse, N.Y.*

Progress Is Our Most Important Product

GENERAL ELECTRIC

Any town or township can cut operating costs with . . .

HYPRESSURE **Jenny** STEAM CLEANER

For more than twenty-eight years, municipal, county, and state governments have used Hypressure Jenny Steam Cleaners to make tough cleaning jobs easy, cut labor expense, and improve the effectiveness of their maintenance programs. Here are just a few of the many jobs which Hypressure Jenny will do *ten times faster* and better than any other method, to reduce your maintenance overhead:

- **Clean Street and Highway Traffic Signs**
- **Clean Beacons . . . Standards . . . Islands . . . Painted Curbing**
- **Clean Trucks . . . Cars . . . Automotive Equipment and Parts to Speed Repair or Repainting**
- **Sanitize and Deodorize Garbage and Refuse Containers and Truck Interiors**
- **Clean Tunnels . . . Walls . . . Building Exteriors . . . Statuary**
- **Thaw Frozen Hydrants . . . Pipes . . . Culverts . . . Icy Paving**
- **Clean Bar Screens . . . Chambers . . . Sewers and Trucks in Sewage Treatment Plants**

Powerful, portable Hypressure JENNY goes anywhere . . . cleans anything . . . is safe and easy to use. Ordinary labor can operate it.

We'll gladly send you full particulars on how Hypressure JENNY Steam Cleaner can cut maintenance costs for you. You will not be obligated.

MAIL THE COUPON TODAY ➤

HYPRESSURE JENNY DIVISION

HOMESTEAD
VALVE MANUFACTURING COMPANY
"Serving Since 1892"
P.O. BOX 46 CORAOPOLIS, PA.

Please send information on Hypressure Jenny to:

Name_____ Title_____

Municipality_____

Address_____

City_____ State_____

For Houston's new 50 mgd plant . . .

Freese, Nichols & Turner, Consulting Engineers, specified the most modern, master filter control system.

This system, for the City of Houston's recently completed $1,000,000 modern water purification plant that is now in service, must deliver top filter performance: maintain exact total flow despite changes in head in 8 filters; precisely measure flow rate, head loss; carefully control wash rates to protect beds; transmit all vital data to *one central control point*—with no lag, no hunting, no inaccuracies.

To meet these rigid requirements, Simplex flow controllers and instrumentation were selected. For dependable pipe-gallery operation, Simplex Laminair® units *pneumatically* transmit data to operating tables. For complete control of all the wide spread operating elements, Simplex Orthoflow® units *electrically* transmit data to one central point—instantly, accurately.

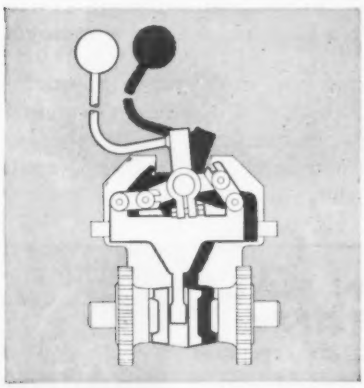
Your plant may achieve automated operation with minimum changes in present instruments and controls. Write for information. Simplex Valve & Meter Company, Dept. AC-10, 7 E. Orange Street, Lancaster, Pa.

SIMPLEX®
VALVE AND METER COMPANY

"The Allis-Chalmers Forty Five motor grader has the

BEST CONTROLS I'VE EVER TOUCHED"

That's what veteran motor grader operator R. C. Fryer of Telephone, Texas, says about the new mechanical, toggle-type control levers on the Allis-Chalmers Forty Five motor grader he is operating for the J. C. Watson Construction Co., Dallas, Texas.



FORTY FIVE
120 brake hp • 23,800 lb

And here's why Fryer is so enthusiastic. Toggle-type controls move gears into operating position surely, quickly when operator moves lever . . . but with *no* wrist-snapping kickback. Levers stay put—can't fight back. With no backlash to worry about, Fryer does precision jobs faster and easier.

You've got to see it to believe it

R. C. Fryer is a veteran of the four-mule Fresno days, and his enthusiasm is proof that the Forty Five is motor grader news worth looking into. Check and you'll find toggle-type controls are only one of many features that mean new performance and new operating ease.

The big Allis-Chalmers diesel engine provides real lugging ability. The ROLL-AWAY moldboard rolls the load instead of pushing it . . . moves it faster with less effort. Fully enclosed power steering, new accelerator-decelerator pedal, real operator comfort, excellent visibility, all add up to the kind of production and long-life service you want.

See the Forty Five. Try the Forty Five. Find out for yourself the many advantages that will help you get top performance and big production on your jobs.

Your Allis-Chalmers dealer has complete facilities to serve you—factory-trained sales and service personnel, factory-approved service equipment and complete stocks of True Original Parts.

ROLL-AWAY is an Allis-Chalmers trademark.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

Could this happen because you waited too long to order salt?

Order Morton Rock Salt now—before the first unexpected storm ices your streets and highways

Every year many highway officials find their rock salt supplies are short (or even non-existent) when the first snow storm strikes unexpectedly. Sometimes lives are needlessly lost in traffic accidents due to the absence of rock salt when it's needed most.

Stockpile Morton Rock Salt now—without loss or inconvenience—for winter ice and snow removal

Eliminate confusion, extra work and accidents by stockpiling Morton Rock Salt now. Store it in unused buildings, garages, loading platforms or outdoors near key traffic points. A Morton Consulting Engineer will be happy to advise you.

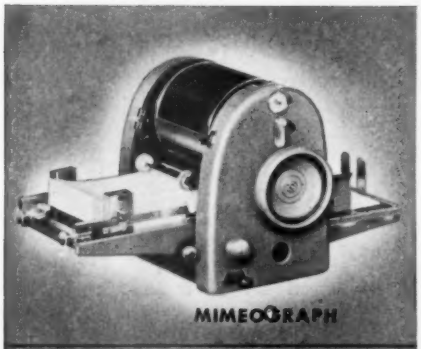
Send for free information today!

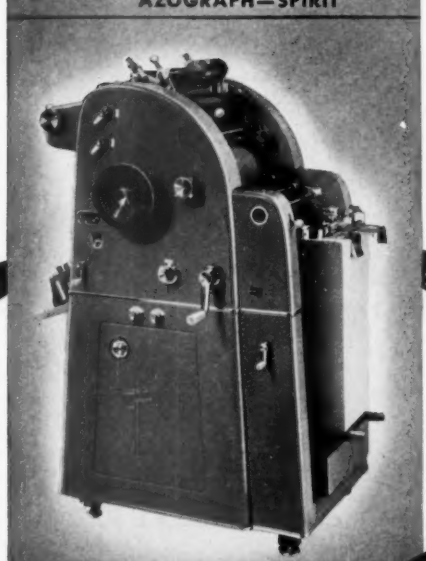
Fill in and mail the coupon below for valuable help with ice and snow removal.

☐ *Please send me your free book on ice and snow removal.* ☐ *I would like a Morton representative to advise me on how best to stockpile Morton Rock Salt for my town.*

MORTON SALT COMPANY
INDUSTRIAL DIVISION
Dept. AC-10 120 So. La Salle Street, Chicago 3, Illinois

Name ▼ Title Address ▼ ▼City County ▼State





why argue about processes?

With MODERN duplicating you can produce the kinds of copies you want on equipment that fits your needs

For ten to thousands of copies in rich black and/or colors, there are the new A. B. Dick® mimeographs—from low-cost, hand-operated models to heavy-duty, power-driven models.

For short runs with positive cleanliness, there are the economical A. B. Dick Azograph® duplicators. Here, at last, is smudge-free, stain-free duplicating for the times when five to fifty and more copies are needed immediately. And this machine can also be used for spirit process duplicating.

If you need up to 9,000 copies an hour of written, typed, drawn or photographed material—in fine line—with half-tone screens—with solids, then you will want to see the new A. B. Dick offset duplicator with efficient AQUAMATIC control that assures top quality copies.

Each of these duplicators has valuable features. Each has its place. But, you get the real benefits and savings of MODERN duplicating when you have the process or combination of processes that fits your individual needs.

Your A. B. Dick Company distributor will be glad to show you the many new developments in MODERN duplicating. His recommendations will be unbiased because he has all the above processes. You will find his name listed under Duplicating Machines in the classified section of your phone book. Or, mail the coupon below.

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PIPELINE News from L·O·F GLASS FIBERS COMPANY

BLUE FLAG PROTECTS TIDELANDS WATERLINE!

The ground was so wet that water had to be pumped constantly from the ditch by the well point system shown here. ▶

City engineers of Anacortes, Washington, were faced with the problem of laying over 24,000 feet of large-diameter water pipeline—most of it through wet and muddy tidelands, an extremely corrosive environment!

To assure complete protection, Engineers Carey and Kramer specified L·O·F Glass Fibers' Blue Flag reinforcing inner wrap for the pipe, which was wrapped by American Pipe and Construction Co., Portland, Oregon.

Blue Flag pipe wrap is made of special inert glass, which resists the action of soil chemicals. The strong, uniformly porous mat acts to give you pipe with:

- increased enamel strength
- high resistance to cracking and backfill damage
- improved enamel distribution with far fewer "holidays"
- years more service life

... all this for less than ½% of your original pipeline investment. Be sure to specify Blue Flag for your over-the-ditch or yard-wrapped pipe. It's available from strategically located distributor warehouses. For full details, write: L·O·F Glass Fibers Company, Dept. 85-106, 1810 Madison Avenue, Toledo 1, Ohio.

LOF GLASS FIBERS
BLUE FLAG PIPE WRAP

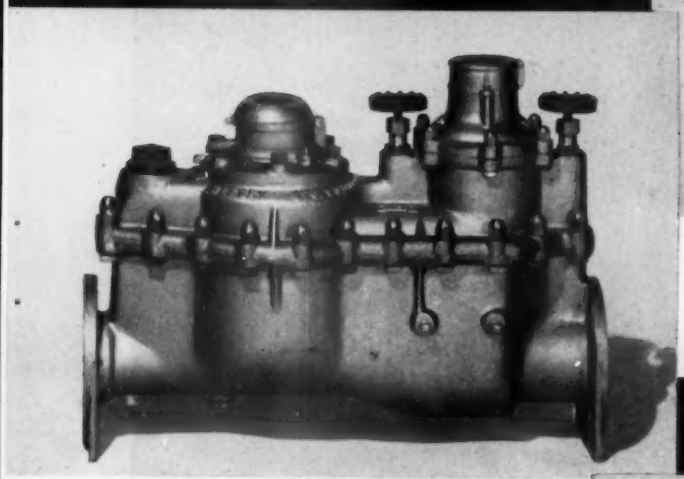
L·O·F GLASS FIBERS COMPANY
TOLEDO 1, OHIO

Makers of glass fibers by the "Electronic-Extrusion" process

A Complete Line for Pipeline Protection: BLUE FLAG Reinforcing Pipe Wrap • **DURAMAT** Protective Outer Wrap • **DURAMESH** Pipeline Fabric • **DURATAPE** Pipeline Joint Wrap

HERSEY DISC WATER METERS

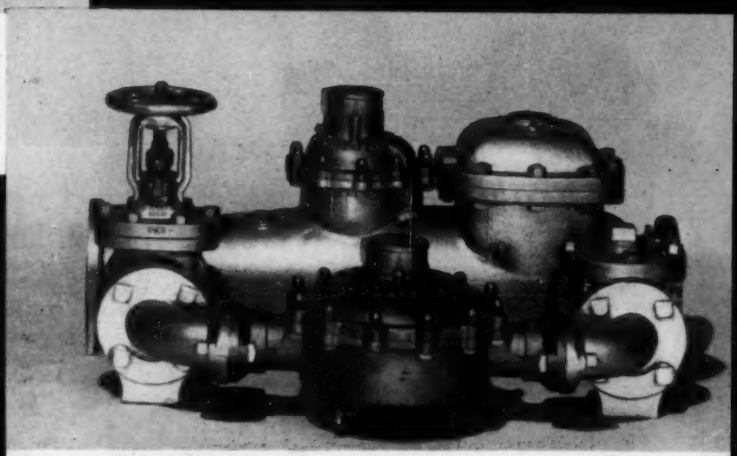
for domestic services



HERSEY

COMPOUND WATER METER

All bronze case 2" to 6" inclusive



HERSEY DETECTOR (Fire Service) **METER**

with DISC METER on BY-PASS

Also furnished with All Bronze Case Compound Meter on By-Pass for special types of service

For all types of efficient Water Meter Service

HERSEY WATER METERS

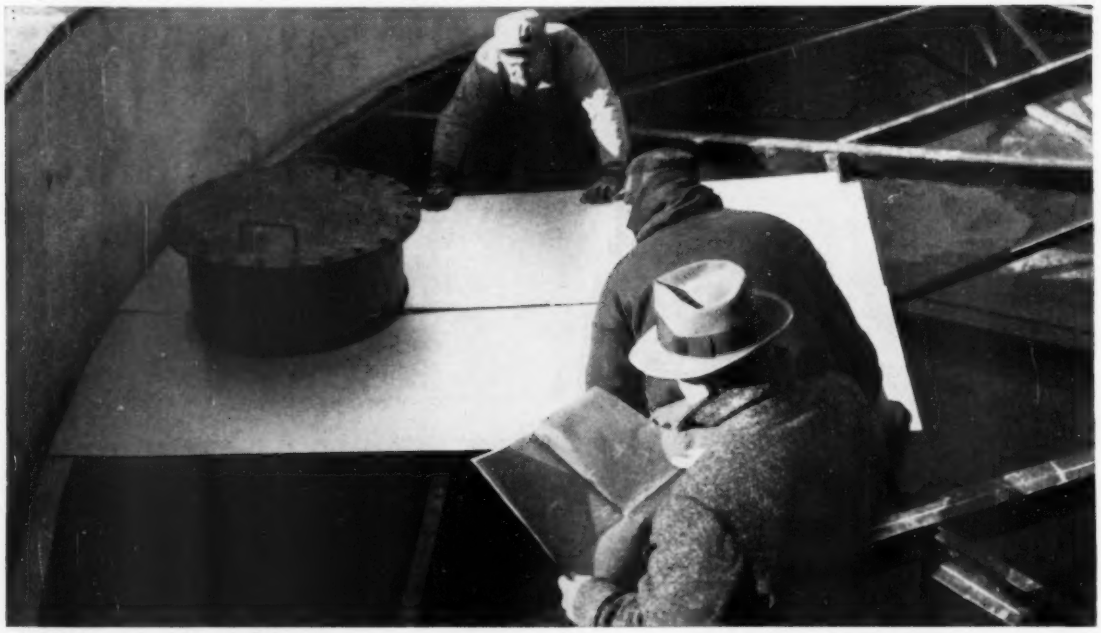
have never been surpassed for accurate registration and low maintenance costs.

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

Prefabricated aluminum roofing shown during installation at Princeton, N. J.



At Princeton, New Jersey . . .

PFT metal roofing on new floating cover provides longer life, better insulation

Section of roofing showing (1) aluminum top sheet, (2) inch-thick fiber-glass insulation, (3) aluminum reinforcing channel, (4) corrugated supporting ribs.

In expanding and improving its sewage treatment plant, Princeton's engineers considered immediate results *and* long-range economy, chose a *PFT Floating Cover* with *metal-clad roofing* for its new 35′ digester.

The reasons were specific—metal roofing offers four distinct advantages over conventional wood types: (1) longer life—equal to the life of the cover itself, (2) more efficient insulation, (3) fewer maintenance problems, (4) easier assembly and installation.

PFT metal roofing consists of prefabricated sections with embossed aluminum top sheets, each piece marked for easy assembly at the plant site. The sections are designed for close fitting in the field with a 3″ lap of top metal covering at all joints (see illustration). Cutout sections are provided to fit around sampling walls, hatch framing and manholes.

The completed 35′ Floating Cover as it looks today.

With fiber-glass insulation, PFT metal roofing resists heat loss and keeps digester heating costs at a minimum.

The cover is designed for later installation of PFT's *Pearth Gas Recirculation System*—an economical process that controls the formation of scum, making more effective use of the entire digestion tank capacity.

Congratulations to Princeton on their modernized plant and far-sighted planning!

Design of plant by / *I. Russel Riker, Borough Engineer*

P.F.T.

PACIFIC FLUSH TANK CO.
4241 Ravenswood Avenue
Chicago 13, Illinois

No "Cure-All," but...

Salinas, California, finds a single grade of Bitumuls® solves five paving maintenance problems

HERE'S A SITUATION common to most growing cities: annexation of outlying residential developments has vastly expanded the street maintenance job *without* materially increasing available funds. Annexation has not only added to the street mileage, but has "contributed" many sub-standard pavements to the street system, thus adding to the complexity of the job.

In an effort to solve this problem, these three Salinas men most directly concerned have worked together: Thomas A. Dunne, Director of Public Service; his assistant, Al Rossi; and Harry Adams, Maintenance Supt. Their search for simplicity and standardization led them to look for a versatile asphalt material that would do many jobs. They found it in Bitumuls SS-1, an asphalt emulsion that can be handled and used without heating, in small quantities or large.

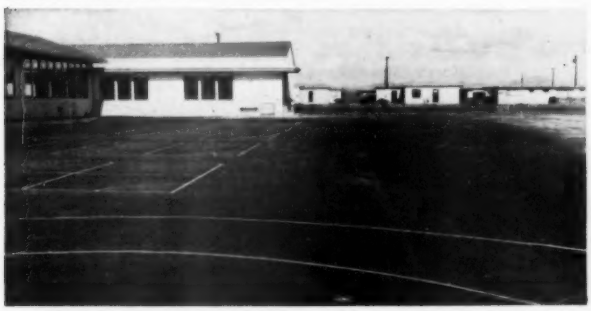
Now, stored in a single 25,000-gallon tank, Bitumuls SS-1 is used for: Patching, Tack Coats, Prime, Seal Coats & Surface Treatments, and for Base Stabilization. In addition, Salinas City Forces can also use this same grade of Bitumuls for the new Slurry Sealing; and—at high dilution – for dust-laying on unpaved, outlying roads. All of these jobs can be done with existing equipment: a grader, a "Pulvimixer", a water wagon, two distributors, and a roller.

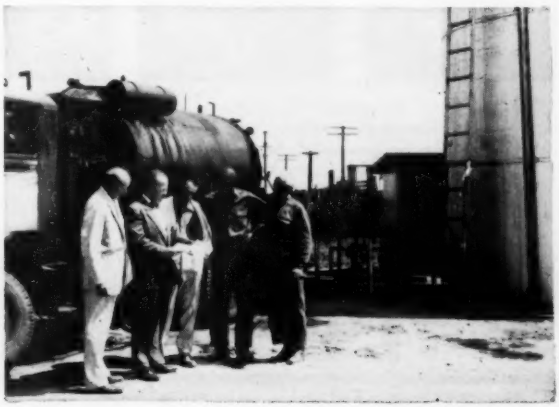
The obvious economies resulting from the use of this one material for all these jobs merit investigation by paving maintenance men everywhere, regardless of the size of their community.

There's a Bitumuls man near you who can supply details. *Call him, today, or write:* **American Bitumuls & Asphalt Co., 200 Bush St., San Francisco 20, Calif.**

(Top), "PULVIMIXER" reworks old pavement that has been scarified and bladed in restabilization operation. Distributor applies Bitumuls at ¾ gal./sq. yd. per inch of depth. (Center), DISTRIBUTOR applies prime on a waterbound base, using Bitumuls SS-1 diluted (2 parts SS-1 to 1 part water) at 0.3 gal./sq. yd. of dilution. (Bottom), HERE'S A CLOSE-UP of the finished texture of a Bitumuls SS-1 Seal Coat pavement.

(Right), SALES ENGINEER Bob Ridell, far left, of American Bitumuls & Asphalt Co., discusses plans with Tom Dunne, Director of Public Service for Salinas, and his assistants. At far right is a partial view of the 25,000 gal. storage tank. (Below), EVEN SCHOOL YARDS are given stabilized bases with Bitumuls SS-1.





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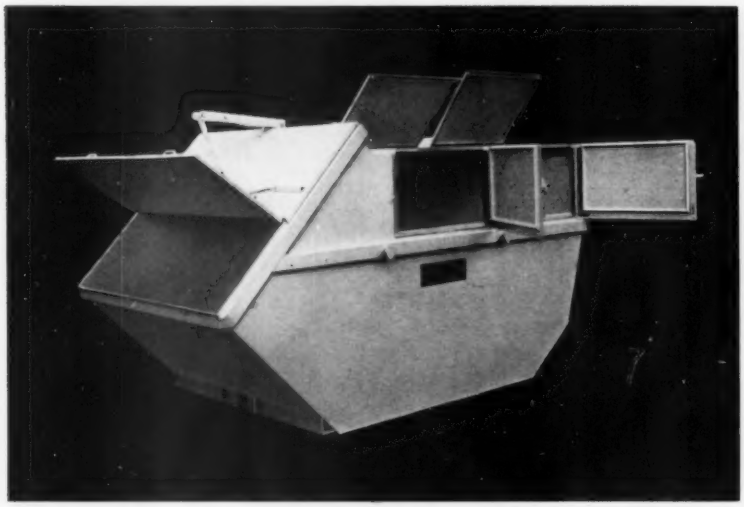

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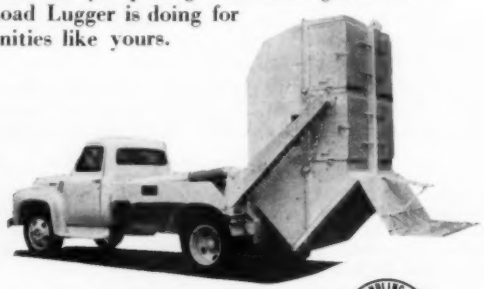

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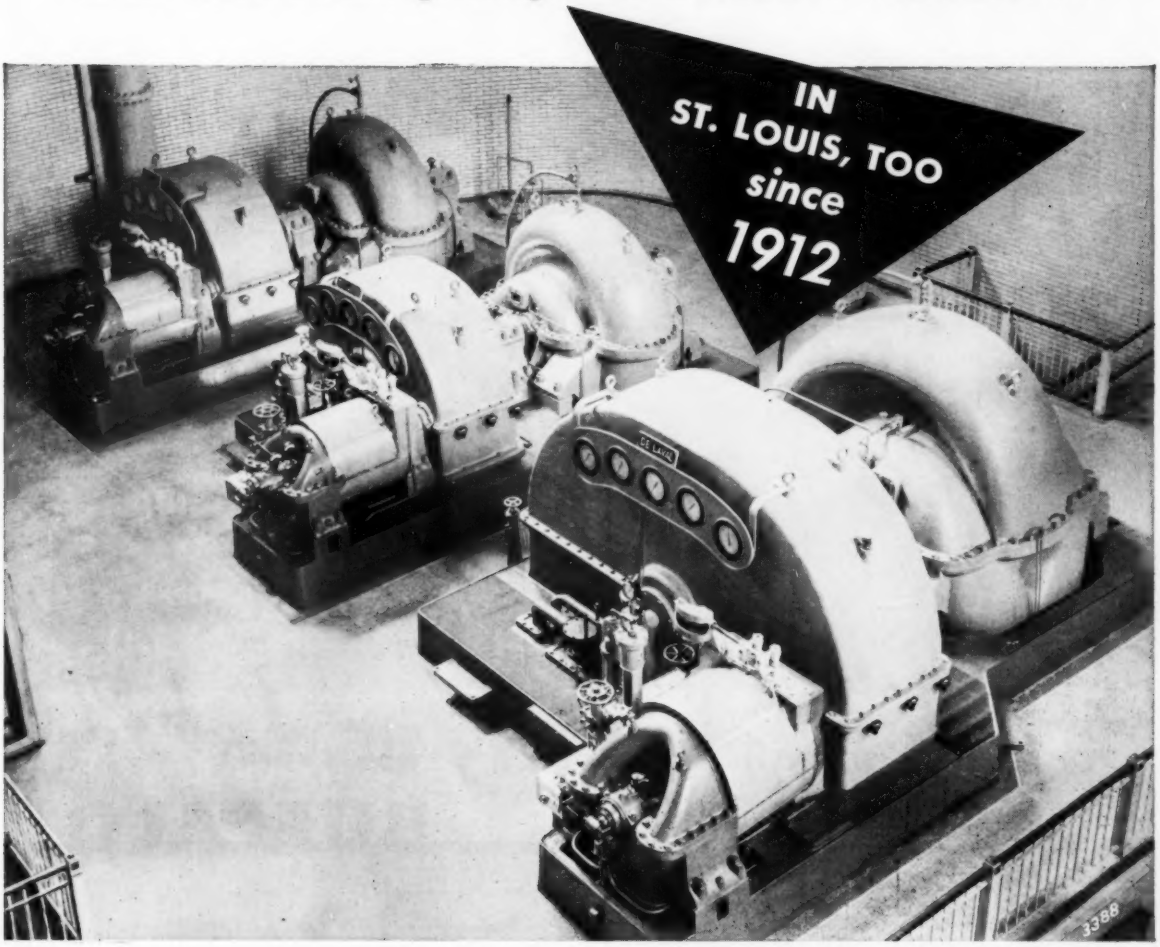

The three De Laval turbine-driven centrifugal pumps (shown above) have given dependable service in the Howard Bend Station of the St. Louis, Mo. water works system for more than a quarter of a century. The two smaller units have a capacity of 60 mgd and the larger one of 120 mgd, all designed to deliver against 40 ft. head.

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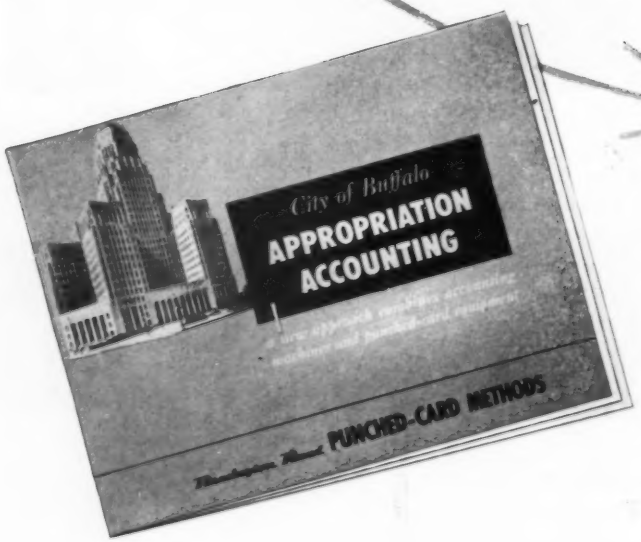

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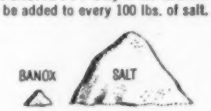

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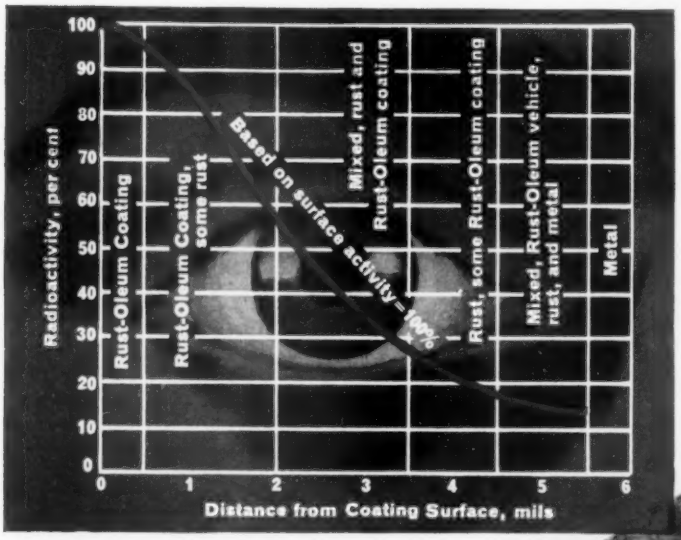

Curved line illustrates Rust-Oleum penetration through rust at each mil level as recorded by Geiger Counter.

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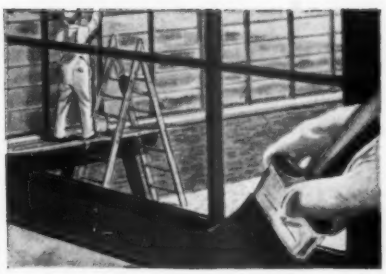

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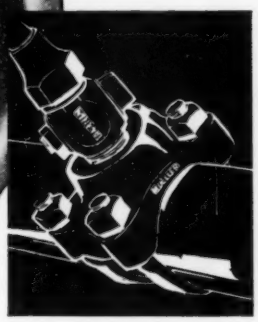

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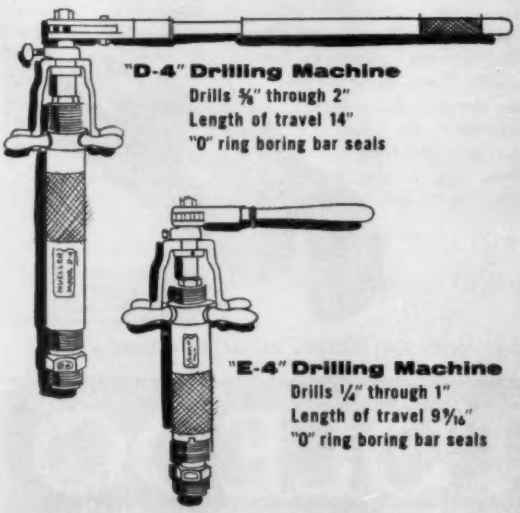

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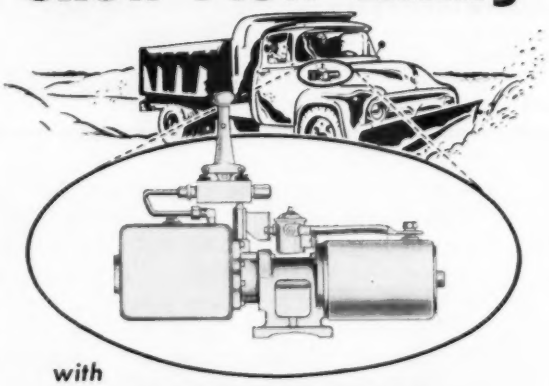

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Yes, you can cut the cost of your refuse collection by using ROTO-PAC. Automatic continuous loading and automatic continuous packing, coupled with greater compaction mean that ROTO-PAC provides maximum tonnage per load, more loads per day. The cost per ton and per cubic yard is cut to the minimum.

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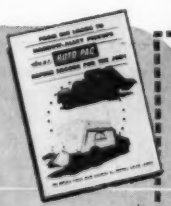

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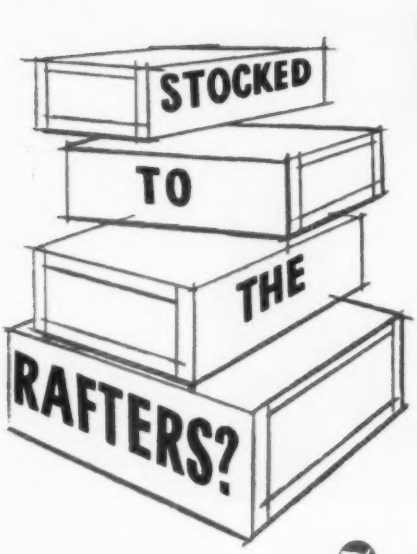

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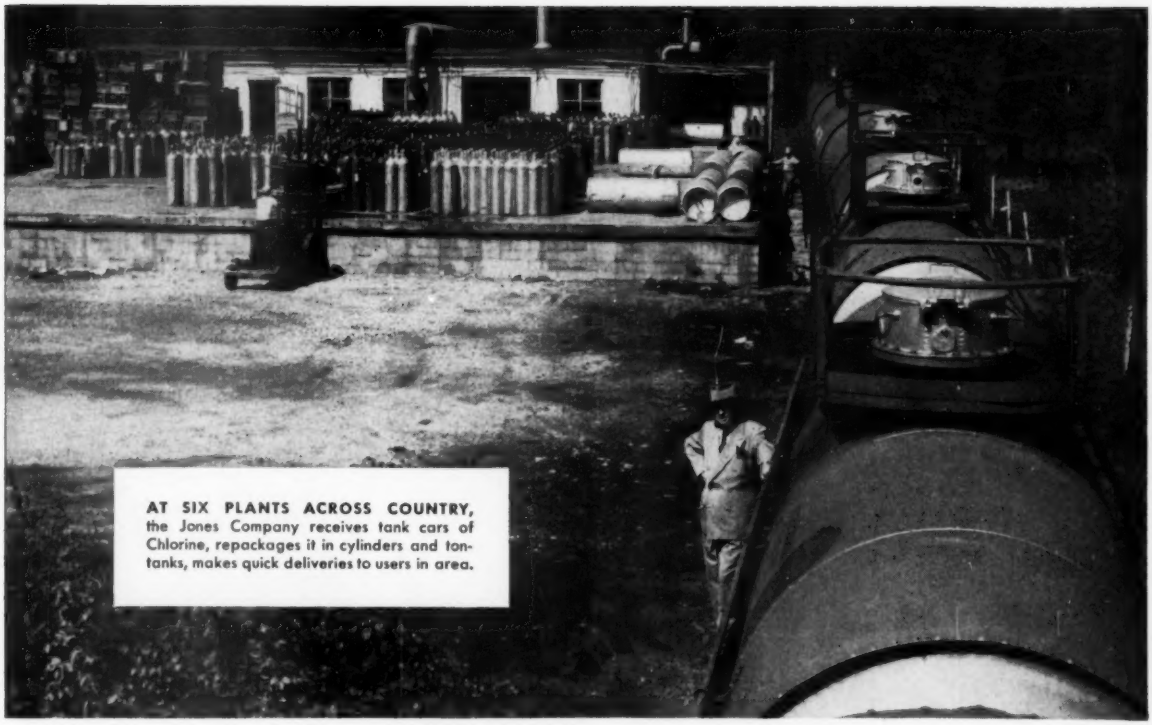

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(70% available Chlorine) 3¾- and 5-lb. tins, 100-lb. drums.
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Gallons, carboys. Tankwagon deliveries in 1000-3000 gal. lots.

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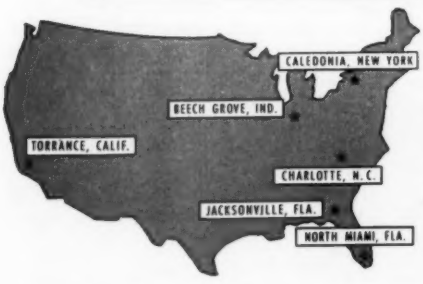
Order shipments as small as a 16-lb. cylinder of liquid Chlorine, and as large as you want. With this flexibility, you eliminate storage problems. We supply more municipalities than all other Chlorine packers combined.

Quality is exceptional—meets high government standards!

Our trained technical staff will be glad to help you solve your Chlorine problem. Write for prices.



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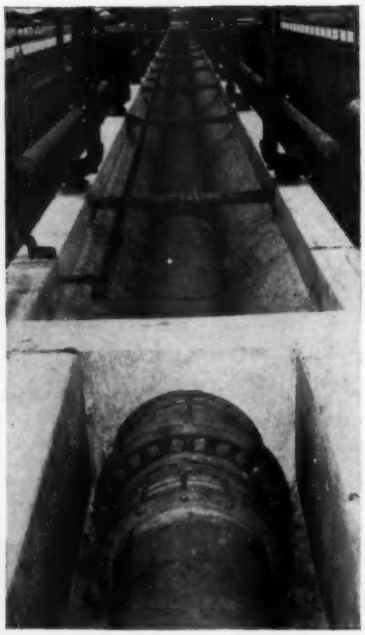
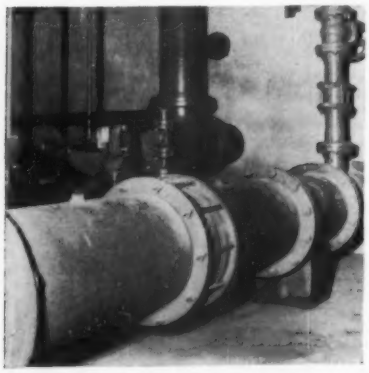


Workmen (left) adjust follower rings before inserting bolts on a 30-inch Style 38 Dresser Coupling. It's the air line leading to the main settling tank in Miami's Virginia Key Sewage Disposal Plant. Steel and cast iron pipe meet in a Style 62 Dresser Reducing Coupling on aeration tank air line (above).

Quick-change Act for Miami Disposal Plant

Steel pipe and Dresser Couplings provide easy access, system flexibility



Dismantling for maintenance looks and is easy with a Dresser Style 38 Coupling. This one joins a low flushing water line in chlorinator building. Another Style 38 is on the vertical line at upper right.

Miami Sewer Project Associates designed the new Virginia Key Sewage Disposal Plant at Miami, Florida, for high reliability and convenient modification.

They sought easy dismantling of permanent aeration lines so maintenance and repair of equipment could be performed quickly. They also wanted an easy way to dismount and set up dewatering lines in new positions as required.

Dresser Couplings were chosen as the ideal answer to this common disposal plant piping problem. They went in quickly, easily and accurately — five precision-made parts, plus required bolts, reduce all pipe joining to a simple mechanical operation. Installations require only a wrench . . . average joining time, two man-minutes per bolt. And they're easy to install in tight places.

Dresser Couplings are a "must" for dismantling purposes. Removal is as easy as assembly . . . and all coupling parts may be re-used in the new piping setup. And, most important in any sewage disposal project, they remove strains on pumps and valves.

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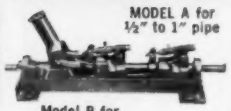
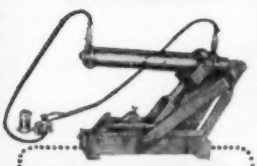


Model B for ¾" to 2" pipe



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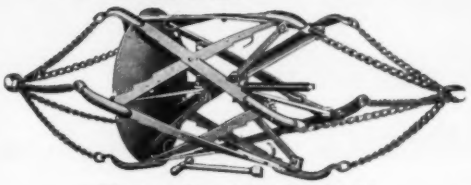

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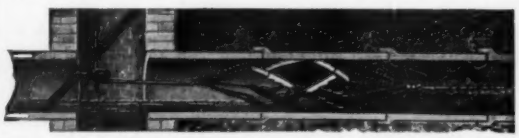
Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.



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Engineers thinking in long-range terms of thoroughly proved sewer main performance . . . contractors interested in serving community needs at new lows in installed cost—both should know all about Transite® Pipe and the Ring-Tite® Coupling. Here is a new booklet that tells and shows how Transite Pipe reduces infiltration, keeps out roots; maintains high flow capacity; speeds installation; permits designing the system for savings. Send the coupon for it today.

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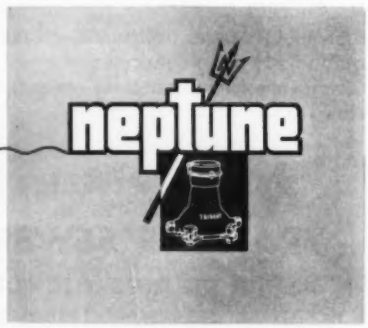
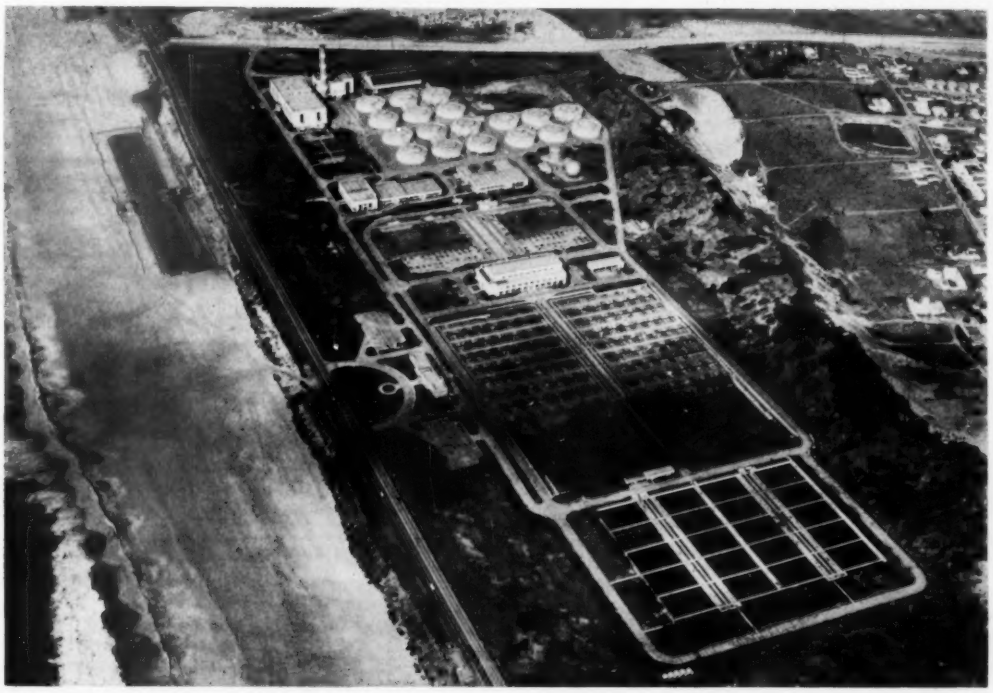




The already ultramodern facilities of the Hyperion plant will be altered and enlarged to better handle the disposal of sewage from Los Angeles and several nearby communities.

Sewage Treatment Design Is Serious Business

. . . in Los Angeles where the city is embarking on a record-breaking study of a persistent pollution problem

By ARTHUR L. WILSON
Director of Public Information
Los Angeles Board of Public Works

THE Los Angeles Board of Public Works, comprised of five of the busiest commissioners of the city, has problems and headaches galore, but the most pressing and stormiest is that of sewerage.

In the summer of 1953, when the present Board took office, sewerage facilities were already severely strained, but the influx of new residents into southern California at the present rate of 1,000 per day has caused a problem requiring something more than just head-scratching.

Mayor Poulson and the Board have faced the situation realistically. Upon finding that the city engineer and County Sanitation District differed on the subject, the mayor appointed a Citizens' Committee to make studies and recommendations. This 21-man committee, under the chairmanship of George B. Gose, consists of men who are leaders in their respective professions and business activities. The group of advisors includes the State Department of Health, the city engineer, Richard Kennedy of the Engineering Office of Clyde C. Kennedy of San Francisco, Dr. Richard Pomeroy of Bowlus-Pomeroy Associates of Pasadena, the Board of Public Works, and other experts in the sanitation field.

The problem of future provisions is a perplexing one. Los Angeles

outgrew its first outfall in 12 years, another after 18 years, and in 30 years has exceeded the capacity of both outfalls now in service.

Our new $60,000,000 program includes a third outfall, known as the North Central Outfall; it also embraces expanded treatment facilities at the Hyperion plant, and two long offshore outfalls extending seaward from Hyperion. These main facilities, not including interceptor lines, are designed to care for a population anticipated in the year 2000. However, if the rate of growth continues to accelerate, nobody can be criticized for questioning the estimate.

Plans call for increasing the Hyperion plant capacity from 245 mgd (million gallons per day) to 420 mgd, with a 720-mgd peak-load capacity. The digested sludge outfall, about 2 feet in diameter, will extend into the sea 6.5 miles from the plant and discharge into the Santa Monica submarine canyon at a depth of 300 feet. The plant effluent outfall will be 12 feet in diameter, five miles long, and will discharge effluent in 200 feet of water. Design peak flow of this line is 720 mgd.

A portion of the plant will operate as a standard activated-sludge plant and, if economical, waste activated sludge will be processed into fertilizer, reducing the amount to be discharged into the ocean.

Existing Plant

The existing Hyperion plant commanded more than its share of attention when it was constructed six years ago. It is a huge assembly of purification units, covering 75 acres. The plant was designed to receive an average dry-weather flow of 245 mgd, a daily peak of 350 mgd and storm peaks of 420 mgd. It was expected to receive a sewage with suspended solids of 340 ppm and a BOD of 250 ppm, and to remove roughly 90% of this pollution.

Its method of handling large incoming solids is unusual. The sewage first passes through four Dorrco automatically-raked bar screens that remove the solids. These in turn are conveyed to two 36-inch Chicago Pump Company comminutors, that grind them into small particles and return them to the sewage flow. Inorganic solids are removed by three Dorr Detritors.

Before the sewage goes to the primary tanks, it receives 30 minutes of pre-aeration. The primary tanks are 300 feet long, 56½ feet wide, and covered. Each is equipped with Jeffrey traveling sludge collectors that remove the sludge and skim the grease so that it can be removed to the digesters by Yeoman pneumatic ejectors.

There are 32 aeration tanks, each 300 feet long and 30½ feet wide, providing an aeration period of 3.22 hours. The tanks are equipped with Saran-wrapped Chicago Pump Company swing diffusers. The 20 final settling tanks are each 125 feet long and 76 feet wide and are equipped with Link Belt sludge collectors.

To dispose of the sludge, the plant has 18 digesters, each 110 feet in diameter and with a 30½-foot water depth at the wall. Digested sludge first passes through elutriation tanks and then proceeds to a battery of 12 Eimco vacuum filters. The dewatered sludge then goes to four Raymond flash dryers for drying to form a fertilizer, or for complete incineration.

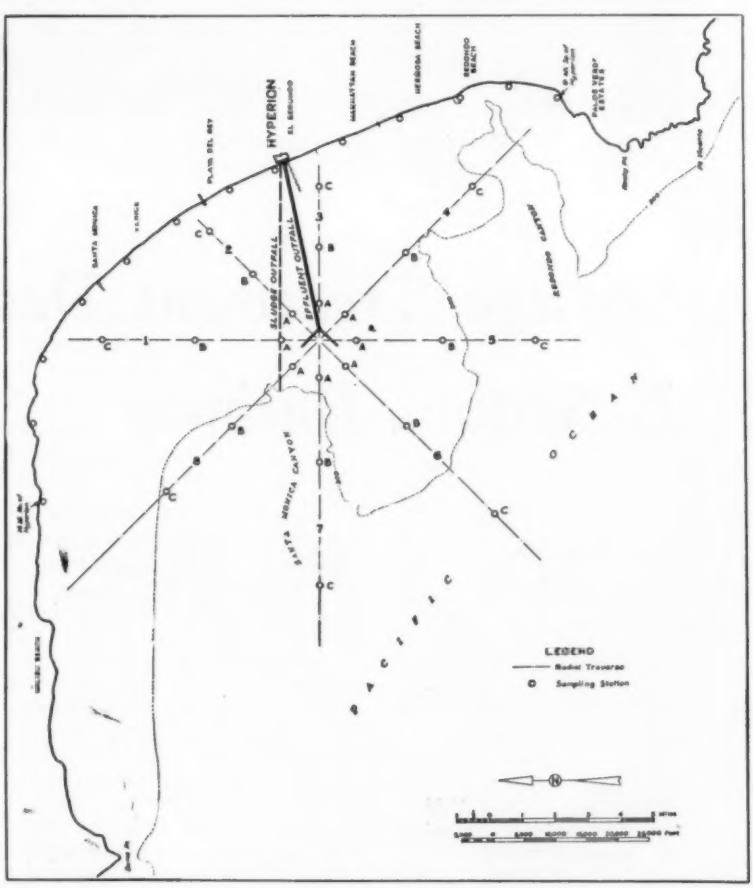
The gases of digestion are used as a source of power in nine supercharged Worthington dual-fuel diesel-type engines, each with 1,688 hp. Five are connected directly to 1,190-kw generators and four to centrifugal blowers.

To store the gas, the plant uses one Chicago Bridge and Iron Hortonsphere for gas under relatively high pressure, and a General American Wiggins gas holder for gas under lower pressure. Vapor Recovery Company flame traps and burners protect the gas lines and dispose of any excess gas not used in the engines.

Design of the effluent pumping plant calls for the installation of five 60-inch pumps rated at 120,000 gpm with space provided for a sixth unit. Original total capacity will be 600 mgd at a 37-foot head with room available for expansion to handle 720 mgd against a head of 63 feet.

Relief and interceptor sewers will cost about $20,000,000, the North Central Outfall about $13,000,000, and the plant expansions and submarine outfalls about $27,000,000.

Three firms—Holmes and Narver, Inc.; Daniel, Mann, Johnson and Mendenhall; and Koebig and Koebig



A diagram of the State Water Pollution Control Board monitoring system for proposed Hyperion waste discharge. The city recommended refinements and improvements to this program.

Marker dye released from this skiff anchored five miles to sea from the Hyperion plant enabled researchers to study surface currents by use of aerial photographs showing movement of the patches.

—have formed a joint venture, known as Hyperion Engineers, to design all the new facilities except local interceptors and relief sewers. Also, the Board of Public Works established a Hyperion Board of Consultants which consists of a representative from each of the three firms in Hyperion Engineers, Bowlus-Pomeroy Associates, Engineering Office of Clyde C. Kennedy, and the city engineer to review and approve the plans and specifications prepared by Hyperion Engineers.

Research Activities

Exhaustive oceanographic and geological surveys will determine the exact locations of the submarine outfalls. Over $145,000 was paid to the Allan Hancock Foundation of the University of Southern California for conducting such surveys for more than a year. The city awarded an additional $10,000 contract to the Scripps Institute of Oceanography of the University of California to review and comment on the general oceanography program. A third award was made to LeRoy Crandall Associates, foundation engineers, for on-shore geological surveys in the general area of the North Central Outfall.

The oceanographic surveys included the developing of bathymetric charts and topographic details of the bay's floor at one fathom intervals (6 feet) and sediment studies to determine direction and velocity of bottom flow, areas of erosion, contribution and source of organic material, strength of bottom sediments, and general geology of Santa Monica Bay. Hancock scientists studied tidal characteristics of the area to determine seasonal and annual criteria. They made reports of salinity distribution and vertical water temperatures which were considered as to their effect upon relative specific gravities of waste and sea water. Studies were also made of climatology to predict swell and wave action as the result of winds, as well as of marine life, bacteriology, and of transparency and water color to evaluate turbidity and distribution of contaminants.

When planning submarine outfalls carrying sludge and effluent, it must

Hancock Foundation scientists worked more than a year on oceanographic studies of Santa Monica Bay. Facilities of this University of Southern California floating laboratory were utilized during this period.

Daily samples are taken and analyzed from 14 points along a 23-mile stretch of beach frontage on Santa Monica Bay.

be known in advance how much fouling can be expected from living organisms. Getting this information requires studies of seasonal and yearly growth of the organisms, their species and density, as well as noting distribution of materials in the water that might promote their growth.

In January of this year, Mayor Poulson revealed that the engineers employed by the city were studying the possibility of utilizing atomic energy in the decontamination and disposal of sewage. Hyperion Engineers and the Nuclear Science and Engineering Corporation of Pittsburgh have arranged for experimental work on samples of Los Angeles sewage in laboratories at Pittsburgh and at established reactors to determine the feasibility of atomic treatment.

Atomic Energy

On May 22, 1956, isotopes were used to trace the disperson of sewage effluent in Santa Monica Bay. With the approval of the U. S. Public Health Service, the Atomic Energy Commission, and local health agencies, the material scandium 46 was introduced into the effluent at the Hyperion plant and discharged into the sea through the existing outfall. For more than a 24-hour period, scientists aboard the laboratory ship, Velero IV, and the city's small floating laboratory, the Prowler, took radioactive measurements at various depths and locations to determine dilution and rate and direction of diffusion. This was done over an area of approximately 25 square miles with excellent results.

A third use of radioactive material is soon to be tried experimentally within the Hyperion plant. Cobalt 60 will be attached to the pipe cleaning "go-devil" to help trace its location as it passes through the pipeline during cleaning operations. This procedure will make it easy to locate the "go-devil" whenever it becomes jammed in the line, thereby saving much time, energy, and money required under present methods of operation.

Connection Restrictions

City officials recognized that unless steps were taken to reduce the rate of increase in the sewage flow tributary to Hyperion, the capacity of the existing outfall sewers would be exceeded before additional capacity could be constructed. Therefore, sewer connection regulations were adopted and put into effect. By these regulations, sewer construction under assessment-act proceedings is to be delayed until the North Central outfall sewer is completed unless the City Health Officer states that a health menace would exist if the sewers were not built. Also, sewer connections are not permitted without a statement forbidding private sewage disposal from the Health Department or Building and Safety Department. It will be allowed in those cases where the city has previously obligated itself to accept sewage from private property. Also, limitations have been placed on the additional quantity of industrial wastes and acreage rate of domestic sewage. This action was taken as an extreme necessity fully realizing it would place a small economic loss upon certain properties in the city.

Monitoring Program

Some of the beach cities in the Los Angeles area are fearful that the disposal of sewage will create undesirable pollution regardless of the method of treatment and disposal. However, the State Water Pollution Control Board is not this skeptical.

Recently, the state assigned an investigator to look into claims that present and future operation of the Hyperion plant is in violation of the 1946 Superior Court injunction restraining Los Angeles from contaminating beach waters. A suit filed by Manhattan Beach and Hermosa Beach seeking $30,000,000 damages for beach contamination has been lost, but the argument continues.

Standards Adopted

On May 2, 1956, the State Water Pollution Control Board adopted an order providing definite standards and strict rules designed to protect the beneficial use of waters of Santa Monica Bay. The order called for the establishment of 24 sampling stations in a monitoring program put into operation on July 1 of this year. Shore sampling stations were required at spacings not to exceed 10,000 feet for a distance of 14 miles north and 9 miles south of the Hyperion plant. The order requires daily samplings and analysis from shoreline stations and weekly checks from offshore stations. Since the publication of this order, the city has shown its good faith by recommending refinements and improvements in the monitoring program.

L. A. Leads the Way

In view of the lively interest and active investigation into new methods of treating sewage and operating modern facilities with the best possible procedures, it does not appear to be an exaggeration to say that Los Angeles now leads the way in providing for the absolute best in sewage disposal.

Right
The 60-inch sawmill has proved a money saver by transforming waste logs into lumber.

Below
The 36-inch underswing saw and conveyor below the big saw turn smaller limbs into cordwood, much in demand by homeowners.

Kansas City, Mo., eliminates brush-burning nuisance and saves $20,000 annually

Sawmill Makes Tree Disposal Profitable

A LINE squall whistled across Kansas City, Mo., during the afternoon of June 27, 1956. Gusts at the Weather Bureau station were recorded up to about 85 miles an hour. The wind ripped limbs off some shade trees and toppled others, creating a big cleanup problem. But Kansas City was equipped to handle it quickly. Altogether, 1,700 truckloads of brush and 1,500 logs in 50 truckloads traveled down to the Municipal Penal Farm for disposal.

For six years the city has operated a 60-inch sawmill at this farm. Last winter a 36-inch underswing-type cutoff saw was installed at the end of the conveyor. The mill is staffed with inmate labor under the supervision of Ray Dixon, a sawmiller of many years' experience. Some limbs were used for firewood; others were sawed and used as lumber at the Municipal Farm.

The city installed the 60-inch sawmill when disposal of trees became a major problem due to an antismoke ordinance. Normally it saws timber removed for street rights-of-way, and also dead stock removed by the public works and park departments of the city or cut out by utilities.

All told, according to Dr. Hayes Richardson, director of the Kansas City Welfare Department, the sawmill means a saving of more than $20,000 a year to Kansas City. It does not compete with lumber dealers for the general market, and it entered the firewood business only when retail dealers felt its product was unsalable.

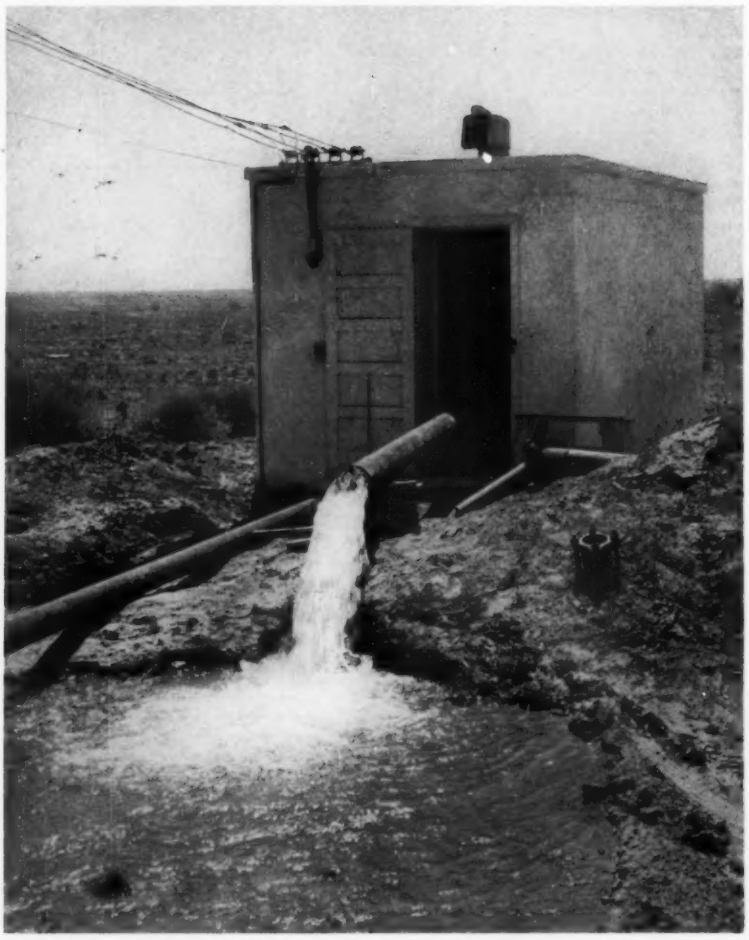
Almost all of this wood is elm. Firewood dealers thought that the public wouldn't purchase it. Repeat orders by the hundreds seem to prove that they were wrong.

Installation of the sawmill started when the city forestry officer ran into difficulty finding a place to burn trees which had been removed. Dr. Richardson suggested that the unwanted logs might be worked into firewood by Farm help.

During the first year, enough firewood was cut or blasted apart to save $6,500 on the fuel bill at the farm. The city tried to sell the surplus to wood dealers, but when they turned the elm cordwood down, the Farm began to sell it directly to homeowners.

Five years ago, Cyril Proven, superintendent of the Farm, went to David Cosner, engineer for the Belsaw Machinery Company in Kansas City, which ships sawmills throughout the nation and to many foreign lands. He told Mr. Cosner his problem and the engineer helped him erect the 60-inch sawmill.

This saved at least 50% on labor, and boosted the cordwood output by 50%. So when the storm hit last June, taking its toll in trees, Kansas City discovered that it had developed an unusual but effective and economical method of meeting this troublesome problem of tree disposal.



Well No. 14 produced 1,365 gpm during test operations.

By W. A. DILLON
Mayor
Lamar, Colo.

Lamar, Colo., demonstrates the value of a little detective work combined with good engineering when solving water-supply problems

Twenty-One Wells and a Gallery

MANY municipal problems are essentially the same; others are vastly different. One that varies greatly from place to place is that of water supply.

Ours is a typical western municipality with the cattle industry contributing to its economic life. It is located on the Arkansas River in southeastern Colorado and at present has a population of approximately 8,000.

Early Supplies Undesirable

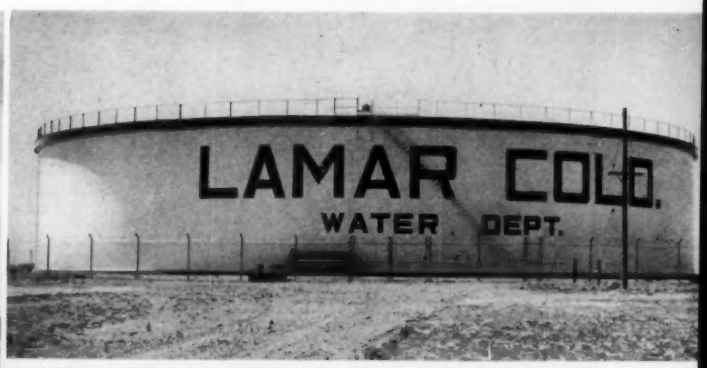
Shallow wells tapping the river underflow served the early inhabitants of Lamar until 1895. In that year, the city drilled deep wells within the corporate limits, provided storage facilities nearby, and built a small distribution system. However, the water from the shallow wells had a high alkaline content and that from the deep wells (700 feet) contained objectionable amounts of iron and soda. To correct this, the city was able to find good water in the underflow of an intermittently flowing stream located 13 miles away.

To get this water, the city did not use wells, but built a gallery system of 12-inch perforated clay tile 1,300 feet long, laid in the creek bed at depths of 6 to 8 feet. Water flowed by gravity from the collection gallery to a pair of concrete reservoirs through a 12-inch wood-stave main. A 3-mile section of 14-inch cast-iron pipe carried the water by gravity from the reservoirs to the distribution system.

In 1929 the city replaced the wood pipe with 9 miles of 14-inch cast-iron pipe and extended the collecting gallery from 1,300 feet to 9,000 feet. This increased the supply from 700 gpm to 900 gpm.

More Water Needed

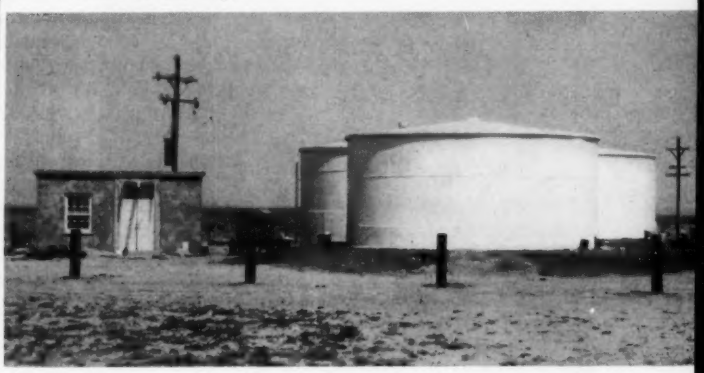
This took care of matters until the long drought period that began in 1934. This time, the city found palatable water in the watershed of the same stream about 10 miles northeast of the existing source and only



(Above) This new 6,000,000-gallon reservoir brings Lamar's total storage capacity to 15,000,000 gallons. Water from the reservoirs flow to the distribution system by gravity.

(Left) A truck-mounted backhoe digs the trench for the 24-inch line connecting the new storage reservoir with the distribution system.

(Below) These three tanks, with total capacity of 200,000 gallons, serve as a collecting reservoir for the north well field. The Atchison, Topeka and Santa Fe Railroad donated the tanks to the city.



2 miles east of the two concrete reservoirs. City forces hand-dug two wells, each 60 feet deep, using 36-inch perforated casing. The new wells were connected to the reservoirs by 2 miles of 10-inch steel pipe supplied by Armco Drainage and Metal Products Inc., Middletown, Ohio. Two Fairbanks-Morse pumps, each producing about 300 gpm, transferred the water to our system.

All went well for the next 12 years. But in 1946 the city again showed signs of outgrowing the water supply and a new search was on. This time we employed a well driller to make a series of tests that culminated in the drilling of six additional wells 36 inches in diameter and varying from 60 to 80 feet in depth, all in the general area of the first two wells. All eight wells were then connected to a 50,000-gallon collecting reservoir which, in turn, was connected to the two 4,500,000-gallon reservoirs by a 14-inch line laid parallel to the old 10-inch line. We installed 300-gpm pumps on the wells and two 1,000-gpm pumps in the booster station for pumping water from the collecting reservoir to the storage reservoirs. All are Fairbanks-Morse units.

The picture changed again in 1949. The annexation of 1,200 acres increased the incorporated area from 800 acres to 2,000 acres. The additional area resulted in 17 new subdivisions, a stimulated building program, and a new demand for water. Emergency measures were taken, and although the people cooperated, we realized that additional water was a *must*.

New Wells

New plans called for a system large enough to serve adequately a population of 15,000 persons. In 1954, the city arranged for a $700,000 general obligation bond issue and ordered a comprehensive test-drilling operation covering the existing well field to a point 3 miles to the north. Plans called also for the laying of additional feeder mains and another large storage reservoir.

We increased our supply by drilling 13 new wells. Five of the wells are in the old, or south, well field and the remaining eight wells are located in an adjacent area called the north well field. Each of the new wells has a 16-inch casing and is equipped with a 500-gpm pump driven by a 15-hp motor. The wells range in depth from 66 to 97 feet and can produce from 500 to 1,300 gpm. Three steel tanks, donated to the city by the Atchison, Topeka and Santa Fe Railroad, are used as the collecting reservoir for the north well field. They have a total capacity of 200,000 gallons. A 3,250-gpm pump powered by a 200-hp motor transfers the water from the collecting reservoir through a 20-inch line to a new 24-inch transmission main. From

City forces laid over 9 miles of pipe. A local contractor did the excavating.

this point the water may flow to the new 6,000,000-gallon storage reservoir, to the distribution system, or to both. Fairbanks-Morse supplied the pumping units for the wells and the booster station.

Additional Storage

The city also constructed a new 6,000,000-gallon storage reservoir on a site 3 miles south and 200 feet above the business district. The tank, erected by the Chicago Bridge and Iron Company, is 180 feet in diameter with 32-foot side walls. W. C. Davis of Lamar poured the 5-foot-high and 18-inch-thick concrete foundation ring and city forces hauled and compacted 4,000 cubic yards of select material within the ring. One can see the tank from a distance of 30 miles in all directions. We are going to paint directional signs on the top of the tank pointing to Amarillo, Texas; Wichita, Kans.; and Pueblo and Denver, Colo.

Three mains, 10, 24, and 16 inches in diameter connect the tank with the concrete reservoirs, the city distribution system, and the connecting mains between the south well field and the concrete reservoirs, respectively.

Sump Pump

In addition we constructed a 30,000-gallon sump adjacent to the concrete reservoirs. This permits the pumping of water from the original collecting galleries to the new reservoir and also allows it to flow by gravity into the concrete reservoirs. Water can be transferred between the steel and concrete reservoirs.

Pipeline work included the laying of 4,200 feet of 14-inch cast-iron pipe and 9,000 feet of 24-inch, 12,000 feet of 20-inch, 6,500 feet of 12-inch, 1,300 feet of 10-inch, and 3,900 feet of 8-inch steel pipe. The city purchased the steel pipe from Hendric and Bolthoff of Denver; Armco Drainage and Metal Products Inc. of Denver, Colo., and Middletown, Ohio; and the Thompson Pipe and Steel Company of Denver in approximately equal quantities. Cost of the pipe came to approximately $300,000. All steel pipe was laid with Dresser couplings and each coupling was treated with tar.

City forces handled the entire job with the exception of tank construction, tank foundation, and trench excavation. Also, many fittings were fabricated in the city shops. Walter E. Gunn of Lamar did the trenching work, using a Shields-Bantam truck-mounted backhoe. The entire system was laid to a theoretical grade requiring cuts to 18 feet. A D-7 Caterpillar tractor with dozer blade did much of the back filling.

Other Facilities

A chlorine house is located along the transmission mains between the reservoirs and the distribution system. Two Wallace & Tiernan feeders, rated at 15 and 50 pounds per day, apply chlorine as required. The rate of application is automatically controlled by the totalizer-recorder circuits of an 18-inch Sparling meter also located in the chlorine house.

The original 12-inch by 5-inch venturi flow meter now installed in a bypass around the 18-inch meter, can be used to control the rate of feed of chlorine whenever the large meter is removed for servicing or repair.

We constructed a new power transmission line to the well field at a cost of approximately $60,000. A new control board now being installed at our electric generating plant will permit remote control of the pumps and a telemetering system will record water levels in the collecting and storage reservoirs. This equipment is being supplied by the Bristol Company.

Uniform Distribution

The large amount of storage capacity permits us to pump at night during periods of minimum commercial power demands, thus affording a more uniform distribution of power. Besides supplying power and light to the normal residents and commercial establishments found in any community, the municipal power plant also supplies electric power to seven small towns, 12 alfalfa dehydrating mills and the Rural Electrification Administration.

George H. Russell, our city engineer, designed the improvements and supervised their installation. Credit also belongs to the many city employees for their part in the construction program.

Regional Highway Planning Gets Started in Detroit Area

THE DETROIT AREA has taken a lead in regional highway planning. To raise such planning from the county to the regional level, six counties in the Detroit area have joined forces to set up an Inter-County Highway Commission. It is the first such organization in the United States.

The participating counties are: Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne. In addition, the Commission will have a representative from the State Highway Department and the Director of the Detroit Regional Planning Commission as an ex-officio member.

One of the Commission's major objectives is to establish adequate widths of right-of-way for future major highways to protect the participating communities from future condemnation costs.

Legal basis for the formation of the new regional highway commission was laid in Michigan last year through amendments to existing state highway legislation.

San Diego's

Pilot-Plant Garbage Composter

City makes a detailed test and finds the process promising but still economically problematic

By ERIC V. QUARTLY
Superintendent, Sewage Treatment Division
Department of Public Works
San Diego, Calif.

The experimenters mixed hay, newspaper, and kelp with garbage to see whether it improved the final product.

IN San Diego, many conditions favor aerobic composting of garbage. The public has been educated to separate its organic garbage from the rest of the refuse, even to the point of keeping out tin cans and bottles; thus we can eliminate the substantial cost of separation at the point of composting. Furthermore, the weather is favorable for year-around operation. And, finally, the outbreaks of vesicular exanthemas have been persistent enough to discourage hog feeding, and encourage other methods of garbage disposal.

As all know, composting has been given a glowing send-off in the public press, and it has the earnest support of many energetic citizens. Consequently, the city council felt justified in authorizing $3,500 to be spent on a pilot plant to see first, whether composting would work, and next, whether its economics were favorable to the city. Accordingly, the Division of Sewage Treatment was directed to construct such a plant to compost garbage alone, and with several types of additives.

We knew, in advance, from work done by the University of California, that this organic material should be composted by an aerobic process. Aerobes work faster than the anaerobes and they do not generate the foul odors. However, aerobes need plenty of surface area available to work fast, so we decided that our first step should be to grind the garbage.

Moisture Content

The limits of moisture content for satisfactory composting seem to be roughly 40% to 60%. As will be disclosed, this caused us some trouble. Our garbage was 70% moisture and had to be drained before the bacteria would go to work.

Thermophilic bacteria appear to break the organic material down at temperatures of from 45° C. to 60° C. The heat released may bring temperatures as high as 70° C. under certain conditions. Air temperatures appear to have little effect unless they are extremely cold.

The ideal pile height seems to be about 5 feet, and oxygen must always be present if the process is to be completely aerobic. The most practical way of producing this is to turn the compost pile with a loader.

Apparently, if the garbage is shredded, piled into windrows 5 feet high, and turned frequently, it will be composted completely in a period varying from three to eight weeks. No doubt exists that the bacteria will perform. Our assignment was to see whether we could make them work at a favorable price. To do this, we built a simple ramp, a funnel-shaped platform to receive the material and feed it into the grinder, the grinder being placed high enough to allow a wheelbarrow to operate beneath it. This is similar to the plant built by the University of California and the City of Berkeley.

Another interesting problem we had to face was that of sampling the garbage so we knew what it was. We took a few forksfull from different parts of selected loads, trying to make them representative. Then we mixed them well and put a portion of the mixture through an ordinary meat grinder. This was then liquefied in a blender and a few grams were removed for analysis.

Occasionally one hears that the quality of the garbage varies with the characteristics of the neighborhood. We did not find this to be

The Hough front-end loader was able to turn the composted piles handily.

the case. Samples taken from five widely separated areas of differing local characteristics all closely showed the same analyses. Averages ran as follows:

Water	72.3%
Nitrogen	2.5%
P_2O_5	1.6%
Carbon	49.9%
C/N ratio	20.2

We set up 12 compost piles each containing from 8,340 to 5,340 pounds of garbage. The average pile was 4½ feet high and 7 feet in diameter at the bottom. We also made a windrow of garbage consisting of five truckloads.

Pile No. 1 consisted of raw, unground garbage containing 73% moisture at the start. After 35 days, the final composted material appeared dark brown and in large particle size. Bones and orange peels, for example, were readily identified. In general, the material did not look salable. Its moisture content had dropped to 13.6% and its weight was 40% of the original. It had been turned 13 times in the period.

Pile No. 2 went through the grinder to emerge as a finely shredded, soggy material that could not be stacked until the eighth day. It had to be turned four times in nine days to reduce the moisture to a point within the composting range. Composting was almost complete in about 28 days. The final product looked salable. Its moisture content was 11.4% and its reduction in weight was 38%.

Pile No. 3 was given a coarser grind. This took 94 days to be completely composted. The final product was dark, with a particle size much larger than pile No. 2. It had reduced in weight 46½% and had a final moisture content of 21%.

In Pile No. 4, newspaper was added to the garbage to determine how it would affect composting. About the maximum amount that we could add was 150 pounds. Although this appears small by weight, it constituted almost 50% of the volume. Moreover, the paper did not affect the carbon-nitrogen ratio in the composted material. This ratio is a factor that we learned is important to those who plan to use the composted material for a fertilizer.

Although the paper absorbed moisture, it in no way helped in bringing about aerobic conditions more quickly. The pile required 25 days to be completely composted. The product looked a great deal like Pile No. 3. Its composted weight was 33% of the original.

Pile No. 5

Pile No. 5 also received a coarse grind and included 400 pounds of dry, powdered sludge from the sewage-treatment plant. This contained 2.88% nitrogen, 4.04% phosphorous, and 14.5% moisture. This combination started slowly, and finally completed its composting cycle in 91 days. It had to be remoistened thoroughly to be complete. The sludge added was heat dried so that the explanation of the long composting period could not be placed on the presence of anaerobic bacteria. The final product was much coarser, probably due to the sludge. The final weight was 35% of the original.

Pile No. 6 was ground coarsely as were the others, but spread out about 6 inches deep for three days, thinking that this might shorten the drainage period. However, we had to write this off as ineffective.

Pile No. 7 also received a coarse grind with the addition of 100 pounds of straw to help take up the moisture. As with the case of the paper, the straw occupied a large volume and 100 pounds was about all that we could add. The straw had the effect of holding the particles of garbage apart, allowing ample aeration at all times. Composting proceeded rapidly and was substantially complete in 20 days. The straw was not materially affected either by the grinding or the composting process. As a result, the final product looked like a dark-colored straw. This might adversely affect its salability. The final weight was 26% of the initial.

Pile No. 8 received a somewhat finer grind, mixed with 60 pounds of straw. The resulting material was soggy, resembling pile No. 2. The ground straw very evidently aided the aerobic conditions. Composting proceeded in six cycles; each time the thorough wetting of the pile was followed by sharp increase in temperature. The final product was a dark brown color, greatly resembling manure. It gave the appearance of being salable. The final weight was 33% of the initial.

Pile No. 9 was ground similarly to pile No. 8 but contained no additives. It was soggy and could not be stacked until the sixth day. It required over 70 days to be completely composted. The final material resembled pile No. 8, but without the bits of straw. Its final product weighed 27.2% of the original.

For Pile No. 10, we set the grinder at medium and combined the garbage with 30 pounds of kelp. It was very

difficult to do, and the pile was so soggy that it had to be stacked for six days. Composting was completed in 75 days after four drops in temperatures and rewetting of the pile. The composted product had the same appearance as that from Pile No. 9 and its final weight was 32% of the original.

Pile No. 11 was given the coarse grind and blended with 3,000 pounds of sewage sludge that had been dewatered on a vacuum filter. It required about 60 days to be completely composted. Possibly the presence of the anaerobic bacteria in the sludge and insufficient turning caused the long composting period; however, we are not sure. The final product contained smaller particles than the other coarse ground material. Its final weight was 22% of the original.

Pile No. 12 also was given the coarse grind and was combined with kelp. This time the material passed through without difficulty. The kelp provided drainage and aeration similar to the straw, but not as effectively. Composting appeared complete in 60 days. The final weight was 29% of the original.

We also tried one windrow, 8 feet wide, 5 feet high, and 40 feet long. This pile contained our most favorable material, a coarse grind plus straw. As was the case with the small pile, the drainage was rapid and the temperature rose sharply until the final decrease which occurred in about 40 days. This is a longer composting period than Pile No. 7, probably because the windrow was not wet down and that it was turned by front-end loader instead of by hand. The final weight was 32% of the original.

Conclusions

San Diego's well-separated garbage presents one problem to any composting operation. It arrives with a 70% moisture content and must drain to 60%, or less. A full-scale operation would require some type of drainage system. However, the garbage cannot be allowed to lie untreated for any length of time because of the fly problem. Any dewatering method that would further increase costs would only add to the cost of a process already economically questionable.

With the low carbon-nitrogen ratio of the city's garbage we expected composting periods of two to four weeks. The high moisture content added as much as a week in some cases. More experience in turning and wetting the piles after they are comparatively dry should lower the composting time. Turning the piles with a front-end loader proved satisfactory, although more thorough aeration appeared desirable. Air temperatures had little effect on the process.

The quality of the final product appears to be a low-grade fertilizer in the "soil conditioner" class. It has a great affinity for moisture.

Costs probably can be reduced in a larger installation. Most of the cost was in the grinding and piling. This probably could be reduced by 10 to 20%. Fly control also would be required but the cost of fly-control chemicals could be reduced by at least 10%. Straw purchased in large volumes should cost less. Applying these possible reductions to the average cost per ton, we get an estimated figure of about $10 per ton as being reasonable.

As a result of this project, it was concluded that the composting of garbage is possible but the economics are questionable. Therefore, the following recommendations were made:

1. **Determine the marketability.**
2. **Investigate alternate possibilities for garbage disposal, including:**
   - **(a) Separate anaerobic composting.**
   - **(b) Combined anaerobic garbage—sludge digestion.**

This "garbage" composting pilot plant project was initiated by, and under the direction of, Richard Gallagher, director of public works.

The San Diego pilot plant project was assigned to the sewage treatment division for accomplishment and was under the general supervision of the author and under the direct charge of Jack H. Kuhns, chemical engineer.

EDITOR'S NOTE: Mr. Quartly's article is based on a detailed report made on the study conducted by the city.

Composting Results

Pile No. And Type	Moisture %	Nitrogen %	P_2O_5	Carbon	C/N Ratio	% of Original Wt.	No. of Turnings	Compost Period Days	Cost Per Ton	Comments
1. Unground, no additive	13.6	2.1	2.0	31.9	15.3	40	13	30	$1.56	Large particles, unsalable
2. Fine grind, no additive	11.4	2.0	1.3	30.8	15.4	38	12	28	14.53	Looked salable
3. Coarse grind, no additive	20.9	1.1	1.2	14.1	13.1	46½	27	94	9.48	
4. Coarse grind, plus paper	10.1	1.4	1.3	21.2	15.5	33	14	25	14.03	
5. Coarse grind, plus fertilizer	19.0	1.3	1.5	18.5	14.6	35	25	91	12.47	
6. Coarse grind, no additive	24.8	1.0	0.7	16.4	16.0	37½	22	90	10.68	
7. Coarse grind, plus straw	15.5	1.8	1.0	38.6	21.6	26	12	20	18.12	Looked like dark straw, unsalable
8. Medium grind, plus straw	23.7	1.4	2.0	21.2	14.8	33	23	73	20.48	
9. Medium grind, no additive	19.6	1.6	1.2	25.4	16.0	27	22	70	17.67	
10. Medium grind, no additive	22.0	1.1	1.3	12.8	11.2	32	22	75	18.33	
11. Coarse grind, sewage sludge	18.5	1.5	2.3	18.6	12.3	22	20	60	18.70	
12. Coarse grind, plus kelp	19.1	1.5	1.3	31.9	21.7	29	19	60	11.04	

Excess material is windrowed and loaded into trucks for disposal or fill, depending on the nature of the material.

Some sections require the addition of bank-run gravel to bring the surface to proper grade.

Two Methods of Street Maintenance

Township and county work hand-in-hand to maintain streets but use different procedures

By ARTHUR H. CURTIS
Superintendent of Public Works
Township of Lakewood, N. J.

THE responsibility for street construction, maintenance, and repair in Lakewood Township, including the City of Lakewood, rests with two departments — the Lakewood Public Works Department and the Ocean County Highway Department. Of the more than 112 miles of streets, the township maintains approximately 64 miles and the county highway department handles about 48 miles. The county department is responsible for over 600 miles of road work.

Two Procedures Used

Outside of maintenance, the work is divided into two categories—new construction and rebuilding. In 1956 we will complete about 1.5 miles of new work and about 8 miles of rebuilt streets.

Although the end result is similar, two methods of construction are followed. The Ocean County Highway Department mixes in-place while we normally use the penetration method. All paving is of the bituminous-type, and at present most of the work is being done in the more rural areas not requiring the construction of curbs and gutters. Rebuilding makes up the greater part of the program and will be described in this article.

We use an Adams motor grader to scarify the existing surface. During extremely dry weather or in built up areas, dust is controlled by applying water to the road using a 1,500-gallon tank mounted on a GMC truck. The soil in this area is mostly sand and gravel and can usually be broken up readily by scarifying and blading. When necessary, we use a self-propelled Seaman Pulvi-Mixer, borrowed from the county, to complete the surface preparation. The material is then bladed to the proper crown and grade and compacted with an 8-ton Huber tandem roller.

A private contractor applies the MC-2 road oil at approximately 0.6 of a gallon per square yard. Our crews then apply sand with a Good Roads spreader, also borrowed from the county, and spread it with a piece of chain-link fence pulled by a tractor or truck. We do not apply a seal coat until the following year.

For this seal coat work, we also use an MC-2 road oil, applied at the rate of approximately 0.3 gallons per square yard. This is followed with a light application of sand, dragging, and rolling. Excess sand is later picked up and used elsewhere.

The Ocean County Highway Department recently completed a ¾-mile section of road that was torn up during the installation of a storm-drainage system. Minor cuts were required to bring the surface to proper width and grade. A Galion motor grader scarified the surface and then windrowed the excess material. A Pettibone Mulliken Corporation Speedall equipped with a 1¼-yard bucket loaded the material into trucks for transfer to low areas or to waste, depending upon the nature of the material. Where necessary, bank-run gravel was hauled in to bring the surface to proper grade. An Athey loader removed excess material wherever cuts were too deep to make blading and windrowing practical. The county also applies water whenever the material is extremely dry or when the work is done in residential areas.

Road Oil

After sufficient material has been removed or brought in to bring the surface to established grade, the material is again bladed into a windrow or ridge and road oil applied. The county also uses an MC-2, and

A motor grader brings the surface to proper crown and grade prior to the addition of road oil.

A self-propelled Pulvi-Mixer breaks up the large lumps and also mixes the road material and oil.

applies it at a rate of 0.4 to 0.5 of a gallon per square yard, depending upon the condition of the road material. As in the case of the township, road oil is applied by contract.

Subbase Oiled

One or more motor graders and a self-propelled Seaman Pulvi-Mixer thoroughly mix the oil and road material and blade it to one side. A tack coat of MC-2 is then applied to the subbase at about 0.2 gallons per square yard and the mixed material is bladed into place and shaped to proper crown and grade. This is followed by another application of road oil, about 0.2 gallons per square yard, a cover of sand, and rolling. Rolling is done with a 10-ton Galion tandem roller and a pneumatic, wobble-wheel roller. Before rolling, a piece of chain-link fence is dragged over the surface to spread the sand cover.

Good Results

Drainage and subbase preparation in Lakewood Township is a minor problem. The soil is mostly sand and gravel, making an excellent subbase. Water that runs off to the side of the road is quickly absorbed by the porous material leaving few puddles or soft spots.

Our roads, both the penetration and mixed-in-place type, have stood up well and give excellent service. Although we have used other grades of oil, and tar on occasions, with success, we still feel that the MC-2 gives us the best results.

Charles Cox is the Ocean County Road Supervisor and R. A. Hendrickson was foreman on the county job described in this article.

Planners Considering Professional Registration

STEPS leading to the official registration of city planners are being explored by the American Institute of Planners, the national professional organization of planning and zoning technicians. A recently completed report by a special Institute committee analyzes the advantages and disadvantages of a professional registration policy. It recommends that the Institute take a favorable position on the idea. Action on the recommendation will eventually be taken by the Institute's Board of Governors after opinions from local AIP chapters are received.

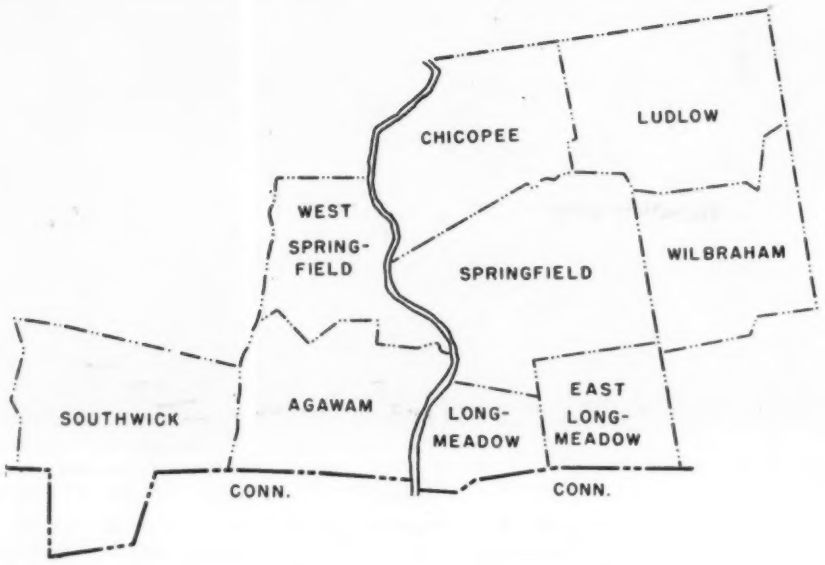
Aside from certain business and interprofessional benefits, one of the principal advantages that registration would bring to both the planners and to cities and towns is the following, according to the report:

Registration would protect the public by assuring that those who call themselves "city planners" or who practice city planning are qualified to do so. It is stated that most cities and towns do not have or cannot afford to maintain examining boards and procedures to weed out the unqualified.

The AIP's move to investigate the pros and cons of professional registration stems from two principal factors. One is the fear that the growing demand for zoning and planning technicians will tempt unqualified persons to call themselves "planners," accept jobs for which they have improper training, and through inadeqate work give the young profession a black eye in the public's view. As persons who have followed the planning field closely know, this is a distinct possibility since, in recent months, there has been an average of more than 240 unfilled positions available to trained planning technicians throughout the country. This has been true despite the fact that the nation's 20 or so planning schools have been turning out not much more than 125 new planners each year.

The second factor leading to the AIP investigation of registration is the conflict that has occurred in several states where engineers have accused planners of practicing engineering. These complaints are usually outgrowths of master planning recommendations relating to water supply and sewerage.

Although such recommendations are usually confined to proposals that facilities for these services be expanded in line with predicted population increases, the engineering profession in some states feels that its professional toes are being stepped on. Advocates for a registration policy for planners feel that such disputes would be alleviated by an official recognition of planning as a profession.



Two cities, Springfield and Chicopee, and seven towns were included in the inventory.

Nine-City Study Finds Homes for Industry

Nine cities and towns in the Springfield, Mass., area have completed an industrial sites inventory designed to protect the future of their regional economy

By RAYMOND E. MURPHY
Professor of Economic Geography
Clark University, Worcester, Mass.
and Editor, ECONOMIC GEOGRAPHY

Is the supply of good industrial sites dwindling in both your municipality and your neighboring community?

Are manufacturers who are looking for land on which to locate new plants turning to other areas because you can offer only second-rate sites in your region?

If this is happening in your community and if you look toward new industry as a means of boosting your municipal tax base, you will be interested in knowing how a group of municipalities are dealing with the problem of industrial sites in western Massachusetts.

To safeguard their economic future nine cities and towns in the Springfield, Mass., metropolitan area have recently completed an industrial sites survey that pin-points and grades all potential manufacturing locations within the borders of the region. The survey has designated all land areas suitable for industrial use regardless of present zoning or other restrictions. All of this was done to provide a guide for future land use policies in the participating municipalities. These communities now recognize that, in a period of rapid residential growth, balancing steps must be taken to preserve an adequate number of sites for future industrial use lest the region suddenly find itself with nothing attractive to offer incoming industry.

The survey which was sponsored by a private organization known as Future Springfield, Inc., had these specific goals in mind:

1. The needs of all types of industry rather than any particular groups of industries were to be considered.

2. The needs of average manufacturers who were just getting started or developing branch plants were to be focussed upon. Similarly, the survey was to be designed to find sites suitable for industrial parks of modest dimensions. In contrast, the study was not to aim itself at the needs of giant corporations.

3. All potential industrial sites were to be considered. As mentioned, local zoning laws were to be ignored on the grounds that zoning varies from community to community and frequently changes.

4. The availability of labor on a purely local basis was not to be considered a ruling factor since the regional supply in the Springfield area is mobile.

Motivations

Perhaps the most important aspect of this cooperation between the central city and its suburbs was the constructive economic thinking that motivated the survey.

This community of municipalities has come to recognize that the maintenance of its common industrial economy is a regional rather than a municipal concern. Local officials here realize that industrial development in any one of the localities will

benefit the entire region through increased employment, greater sales in the stores, and additional commercial development.

They realize further that in a period of decentralization that is characterized by a growing dispersal of industrial and business locations, the economic health of communities in a metropolitan area increasingly depends on the availability of good sites in the suburbs as well as in the central city. Unemployment in any one of the localities is bound to affect the entire region because the workers live throughout the entire area. Hence, economic planning is regarded here as a regional matter.

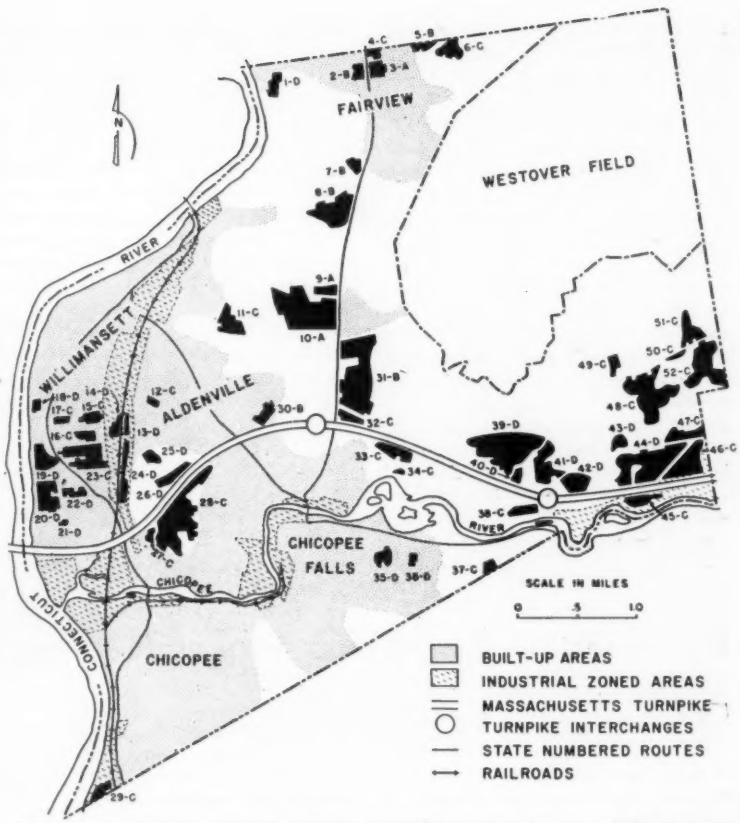
Secondly, although this area is prosperous, with unemployment now at a low level, the cooperating communities decided to worry about their future now rather than wait until the common economic shoe began to pinch. Wisely, therefore, Future Springfield, Inc., and the municipalities thought of the survey as a means of keeping their regional economy a strong and healthy one.

Survey Technique

The actual survey, combining office analysis and field work, was carried out by a team of economic geographers, experienced in urban land use study, working under the author's direction. We had no prescribed pattern to follow since in many respects this was a new type of survey. United States Geological Survey topographic sheets were used, together with air photos, from the Department of Agriculture, as well as geological bulletins and scientific reports, and zoning and land use maps. An active local committee was set up in each of the communities and municipal officials helped to furnish information.

Up-to-date air coverage would have simplified the field work but was decided against because of cost.

The selection of industrial sites was based on a screening procedure and areas were ruled out on the basis of "limiting" factors. For instance, to be qualified as an industrial site, the land could not exceed an average slope of 6%; it had to be at least three acres in extent; and it could not be swampy or subject to periodic flooding. Other sites were dropped if they were intensively built up or were in active preparation for subdivision or other intensive use or were used for public purposes; or if they were inaccessible by a road of moderate grade. No site could cross a stream, a public road, etc. Sites which fulfilled all these conditions were considered to be *potential industrial sites.*



This map of Chicopee shows the potential industrial sites for one of the nine communities. Each site number is followed by a letter showing the quality rating. Chicopee has no very large sites, but in some of the other communities sites of three hundred to four hundred acres were delimited.

Each site was given a number, and details regarding it were recorded on a site sheet containing such pertinent information as road frontage, width of road, power availability, current land use, and present zoning. The sheet also carries a *quality rating* grading the site as A, B, C, or D. An "A" site, for example, presents nearly perfect conditions for industrial development. Needless to say, only a few such sites were found in the entire area, and some towns had none at all. Finally, each of the communities was furnished with maps, tables, and textual material covering its potential industrial sites. Future Springfield, Inc., as the coordinating central agency, received a wall map showing the sites in all of the nine municipalities.

The Survey in Chicopee

The results of the inventory and its local application is best illustrated in the case of Chicopee, one of the nine municipalities. The city, bordering Springfield on the north, has an area of 25 square miles and a population of approximately 50,000. Industry has long been established and some vacant industrial floor space is available. The inventory showed Chicopee to have 52 potential industrial sites ranging from three to 82 acres. Of these only three were "A" sites; six, "B" sites. But only six of the city's 52 sites are in areas now zoned for industry and these do not include any of the "A" or "B" sites at all.

Revision of Zoning Law Necessary

Obviously, if Chicopee hopes to be able to provide good sites for industrial expansion, some revision of its zoning laws will be necessary. And action must be prompt since housing and commercial development are rapidly invading areas suitable for industrial use. Also, any rezoning must give special attention to the Massachusetts Turnpike, now under construction which will give the city two interchanges.

How can an industrial sites inven-

tory be best applied? The following recommendations are made in the light of the Springfield experience:

1. The findings of such an inventory are intended merely as a guide to future industrial expansion. Consequently, if it is decided to zone additional land for industry it must be done with due regard to community needs. For example, some of the potential sites may not fit into the municipality's master plan. It is important, too, that the additional land zoned for industry should include good sites and that they be reasonably close together rather than scattered over the municipality. Attention should be focussed on current industrial trends such as the present move towards larger sites suitable for one-story buildings with extensive parking areas. Also, single-purpose zoning with residential and commercial development barred from industrial land is recommended.

2. Planning again should be on a regional basis. Before final action is taken at the local level, it would be well for the planning groups in neighboring municipalities to get together to correlate their plans for joint action. From the standpoint of regional welfare, it would be undesirable for industrial plants, with their high tax contributions, to concentrate in one town and for the workers to live almost entirely in an adjacent town. An industrial park should be planned to be of maximum benefit to the region and not just to one town or city.

3. There should be a complete and accessible file containing pertinent data regarding the potential industrial sites so that definite information is available to all who inquire for industrial land. Local realtors can help assemble information of this kind.

Completion of the Springfield inventory has been followed by actions of individual planning boards in a number of towns in the Springfield area. Such actions, of course, have to be presented and approved in town meetings.

Step Toward Regional Planning

In the Springfield area it is realized that the entire future of the region depends upon the future of industry, but no official organization of the communities has yet been developed to put the idea into action. In this particular case, a private agency has at least made an initial move in the right direction.

The need for cooperative economic planning between the central city and its outlying municipalities is gaining every day. To this end, there is hope that the industrial sites inventory may hasten the creation of an official metropolitan planning agency in the Springfield area.

Performance Budgeting Makes Headway in Municipal Work

THE municipal engineers and department heads charged with the housekeeping duties of a city are today making the best headway with the new method of bookkeeping called performance budgeting.

Performance budgeting means that a municipal budget will no longer have a lump sum assigned to each item. In addition, the budget will show how much work the money will do, broken down in unit costs, such as: per foot of sewer; per square yard of streets; per ton of refuse collected; or per gutter-mile of streets swept.

A study by the Citizens Budget Commission, New York City, shows that the most vigorous developmental work and most productive results in this type of budgeting are in the field of municipal public works, much of it spearheaded by the American Public Works Association. Typical cities doing excellent work in the field are: Albuquerque, N. M., Detroit, Mich., Fort Wayne, Ind., Louisville, Ky., Newton, Mass., San Diego, Calif, and Tacoma, Wash.

47 Cities

The study embraced 47 cities across the nation, all in the large-city class. Ten had populations over 500,000; 27 are in the 100,000 to 500,000 group; and 10 less than 100,000.

Two principal obstacles appear to stand in the way of budgeting on a performance basis. These are:

- The difficulty of changing systems of record keeping to get the data needed without greatly increasing manpower and costs; and
- The problem of blending improvements in office machine and other automatic recording devices with current operations.

Standards of Performance

The trend toward program and performance budgeting appears to have stimulated progress in development of standards or yardsticks of work performance. This, however, presents the difficulty of comparing accurately performance in one city with that of another. Some cities preferred to identify "measurable" and "nonmeasurable" items.

Albuquerque, N. M., in its budget work, lists these unit costs:

- A 6,000-lumen street light on a wood pole costs $40 per year to install and maintain, including electricity.
- A 20,000-lumen mercury-vapor light on an aluminum pole costs $75 per year, including electricity.
- A new park costs $1,850 per acre for materials, and $1,594 per acre for labor.
- Park maintenance costs $750 per acre annually, but this includes $213 required to install and maintain a sprinkler system.
- Asphaltic concrete pavement, consisting of a 1½-inch asphaltic concrete wearing surface on a 3-inch asphaltic concrete base supported by natural soils that have been compacted and tack-coated, costs $1.94 per square yard.

In Newton, Mass., Willard S. Pratt, director of public works reported cost items that provide yardsticks for street works as follows:

Stone seal, per sq. yard	$0.11½
1-in. bit. conc. resurf. per sq. yd	0.70
2½-in. bit. conc. resurf per sq yd.	1.25
Street cleaning, per cu. yd.	12.00
Street cleaning per curb mile	26.29

Mr. Pratt pointed out that the figures will be high because of spring cleanup of sand, partial cleanup of leaves, and also hurricane cleanup.

In Louisville, Ky., John W. Leake, director of sanitation, reported that he has been calculating the amount of labor required in man-minutes in order to measure the effectiveness of his forces. On a systemwide basis, he finds that each ton of refuse collected requires 127 man-minutes of time. Data such as this, he explains, are not of much use in the budget, but they provide a method of comparing and planning work.

Report Available

The Citizens Budget Committee referred to this as "box-scoring" the progress of American cities toward their common goals of improved and more economical service. A complete copy of the report can be obtained by addressing a request to Mr. John M. Leavens, executive director, Citizens Budget Commission, 51 East 42nd St., New York 17, N. Y.

Old Town, Maine, incorporates rock salt into its snow-removal program

A front-end loader scoops up salt-loosened snow from a downtown street.

Don't Let the Snow Freeze To the Street

By JOHN P. BIBBER
City Manager
Old Town, Maine

WE ALWAYS have found that it pays to apply salt, in the raw form, to a street before a snow storm to keep the snow from freezing to the pavement. When snow is soft, it isn't hard to move. When it turns solid in our part of the country, it becomes a strong, rigid structure that needs demolition with pneumatic hammers instead of easy movement with plows.

Old Town has a population of 8,500 and 45 miles of streets and highways. We open all streets after every heavy snowfall, and clear completely about 2½ miles in the downtown area. We generally can expect 5 or 6 feet of snow each winter and will have to send the plows out 25 or 30 times, giving us lots of practice in keeping the streets clear. We may average 15 storms each winter where icy streets are the prin-

In rural areas a grader with a wing plow keeps roads open and passable.

cipal problem with which we must contend.

Each fall we stockpile approximately 100 tons of salt in a covered shed. As winter progresses, we will augment this with possibly two more carloads, depending on the severity of the weather.

Our salt shed is of frame construction 50 feet long and 20 feet wide. It is located immediately adjacent to a railroad siding so that the bulk salt can be transferred by wheelborrow from the freight car directly into the shed. The shed will permit a truck to be loaded completely under cover. A 21-foot Link auger loads the trucks mechanically.

We apply the salt principally to the downtown streets, using a pair of trucks with Flink spreaders. We send them out ahead of the storm based on reports that we will get from the forecaster at the airport.

We do, however, use salt combined with sand at various locations throughout the city. Our crews mix 100 pounds of salt to a yard of sand and stockpile about 1,700 cubic yards every fall. The same Flink spreaders apply it as needed, generally at the rate of 3 or 4 cubic yards per mile.

Plowing

To plow our rural roads, we use a Model 720 Diamond T truck equipped with a Ross V-plow and a 9-foot Wausau wing. To clear residential streets we use a F6 Ford with a 9-foot Good Roads one-way rigid blade, a 3-ton GMC equipped with a Wausau blade and wing, and a Caterpillar No. 12 grader with a 10-foot wing plow. The grader also helps out on the rural roads after it finishes its duties in the urban area. For very heavy snowfalls, V-plows are available for mounting on the grader and GMC truck.

To clear the snow from our business district, we use a Case tractor with a Lull front-end loader having a 3-yard snow bucket. We also have two other tractors, one Case and the other an Oliver, to plow open our sidewalks.

To finance our work, we depend on direct appropriations from the city budget. However, we also receive $65 per mile from the state for plowing certain roads and streets that serve as routes for state highways.

When a grave must be dug hurriedly, the foreman, found and informed by Motorola 2-way radio, takes his equipment off routine work and sends it to the new assignment.

Cemetery Service Improved by Two-Way Radio

AT Mt. Carmel Cemetery in Hillside, Ill., there are 12 interments each day and about 50 distinct activities involved in a single burial. Because the individuals who coordinate these details are scattered throughout the sprawling expanse of grounds, the communications problem is a specialized one whose only satisfactory solution appeared to be 2-way radio.

The system, supplied by Motorola Communications and Electronics, Inc., Chicago, Ill., consists of a base station at the Mt. Carmel main office, which also handles maintenance operations in Queen of Heaven Cemetery together with mobile radios in three supervisory automobiles.

Since this system was installed four years ago, separation of key supervisory personnel has ceased to be a problem.

What are the specific advantages? On several occasions Mt. Carmel has had over 20 funerals in a single day —once 25—and these peak periods afforded evidence of these values:

- Instant transmission to the field force of changes in burial instructions
- Ordering grave-side rain tents
- Handling last-minute interment orders
- Notifying field foremen of the arrival of off-hour funerals
- Arranging with field foremen to show a particular lot or grave to families or visitors
- Checking complaints
- Snow clearance orders
- Notification of lot selections. A representative of a family often visits numerous locations before making a selection, which in some cases requires confirmation by the sexton's office before being considered final. Radio eliminates delays and trips to and from the grounds during these selections
- Delivery of vaults. When the maintenance foreman learns—by his radio—of the arrival of such a truck at the main gate he simply flips his microphone button and informs the office of the best route to the delivery site
- Checking on delayed funerals to learn if a waiting field crew can be released for other urgent work.

Right.
Mrs. Emily O'Dell, the author, the Underwood Sundstrand accounting machine, and glimpse of the tax roll books which the new system replaces.

Below, right.
The simplified tax bill that has eased the fiscal problem in the New Rochelle treasurer's office.

Tax Billing Speed Doubled in New Rochelle, N. Y.

By JOHN A. GIANNOTTI, *Assistant City Treasurer*

VERY few officials — even city treasurers — object to more taxes. But they do have to be billed and accounted for. That was the fiscal problem in New Rochelle, N. Y., created by more residents, more property owners, and more and larger businesses.

The specific problem in our office was how to speed up the computation of the taxes and the preparation of the tax roll and tax bills with a substantial increase (from 12,174 to 14,444) in the number of accounts. Two additional factors complicated our problem. An amendment to the State Education Law made necessary, since 1952, the preparation of a separate tax roll and a separate tax billing for the School District. Later adoption of the city budget by the City Council shortened the available time for extending the tax rolls and for billing taxes.

Our first thought was, what are we now doing that we can stop doing or do much more simply? Well, since 1952 the City of New Rochelle had been preparing the real estate assessment roll in advance of the extension of the tax amounts. Thus the roll gave assessment data up to and including the valuations. When the tax rate had been set and the taxes had been computed, the amounts were printed on the assessment roll by the accounting machines. Thus the assessment roll became the tax roll. The next step was to print the tax amounts on the tax bills. This was made a separate operation from the extension of taxes on the rolls in order to have the tax amounts original printings on both roll and bills.

It was plain that our office could not handle a 10% increase in the number of parcels in the still shorter time which the City Council ordained (by adopting the city budget later) for extending and billing taxes. It was decided to extend taxes on the roll and write the bills, still as origi-

(Continued on page 188)

PRESENT THIS STATEMENT WITH EACH PAYMENT

WHEN PAYING BY MAIL | FORWARD ENTIRE STATEMENT MAKE CHECKS PAYABLE TO CITY TREASURER. No.

OWNER AND LOCATION	BLOCK	LOT

ASSESSED VALUATION			
LAND	IMPVTS.	EXEMPT.	TOTAL

City of New Rochelle, N. Y.
OFFICE OF CITY TREASURER — CITY HALL
OFFICE HOURS - 9 A. M. TO 4:30 P. M. - DAILY
SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS EXCEPTED

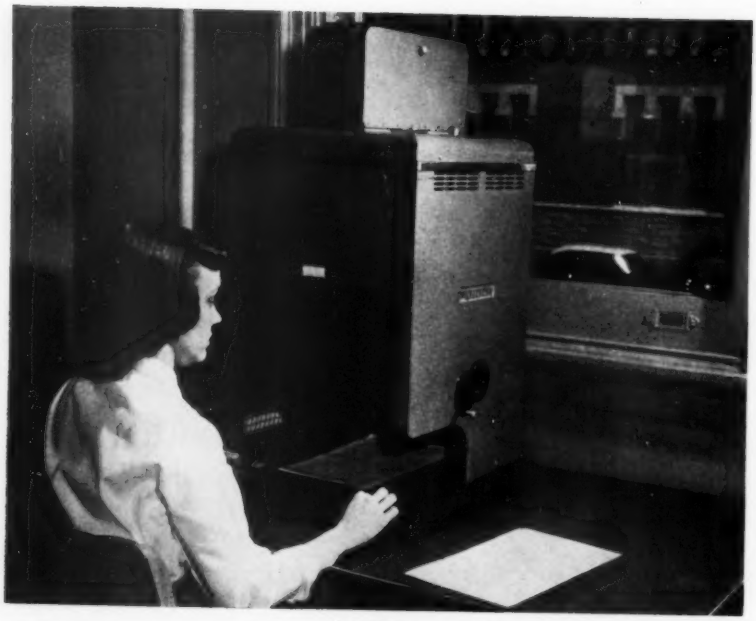
1956 CITY TAXES

VALUATION	RATE PER $100.	TOTAL TAX	FIRST HALF	SECOND HALF
18500	338	41500	20750	20750
			DUE JANUARY 1 - AFTER JANUARY 30 INTEREST WILL BE ADDED AT THE RATE OF 7% FROM JANUARY 1.	DUE JULY 1 - AFTER JULY 30 INTEREST WILL BE ADDED AT THE RATE OF 7% FROM JULY 1.

RECEIPTS VALID ONLY WHEN PRINTED BY MACHINE

INQUIRE OF THIS OFFICE FOR POSSIBLE ARREARS — NOT RESPONSIBLE FOR TAXES PAID ON WRONG PROPERTY
IF PAID BY CHECK, RECEIPT WILL NOT BE VALID IF CHECK IS DISHONORED

STATE AID — *The total amount of local assistance estimated to be received from the State of New York by the City of New Rochelle during the fiscal year ending Dec. 31, 1956, is $475,000.00*



PHOTOGRAPH COURTESY OF RECORDAK CORPORATION

Surrogate Court of Jefferson County, N. Y., records estate papers by pressing button on a Recordak Junior Microfilmer.

Present and Future of Municipal Microfilming

PHOTOGRAPH COURTESY OF DIEBOLD, INC., NORWALK, CONN.

At a branch of the Philadelphia Public Library, a camera microfilms a borrower's card, the book card, and date-due card, and then slips the cards into the outgoing book.

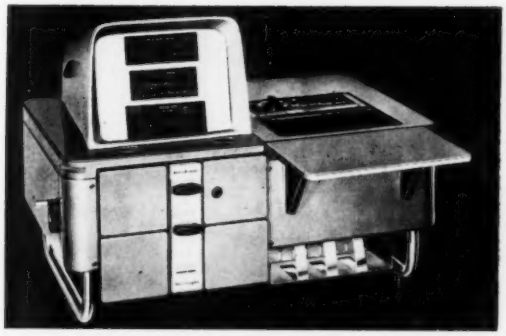
Review of a comprehensive work* that sees beyond security and space saving to microfilming and indexing for rapid search

THE importance of keeping the right records is almost equaled by the necessity of destroying obsolete records, or reducing in volume those records of infrequent use. "Retention and Preservation of Records with Destruction Schedules" is available from Record Control, Inc., 209 LaSalle Street, Chicago 4, Illinois, $4. It summarizes government regulations for records.

So many small municipalities have microfilmed some, or most of, their records in the last 15 years that it may be assumed that the advantages of the process have become well known and accepted in the local government field. A question less easily answered is, "Shall we keep all the films in city hall or should we store one set in a commercial depository, such as the Iron Mountain Atomic Storage Corporation, Germantown, N. Y.?" this is an abandoned iron mine and contains over 100 vaults of 275 to 10,000 cubic feet capacity. Types of vaults and their location are discussed in "Approved Plan for Record Survival," a manual available from Diebold, Inc., Canton, Ohio.

Microfilm is usually either 16mm or 35mm in size. The former is for documents of 8½ x 11 to not more than 16 inches wide. The latter is for newspapers, engineering drawings, maps, and charts up to 42 inches wide. There are, however, two other sizes now available: 70mm and 105mm, for drawings of extremely large size. When frequent use is made of microfilms it may be better to incorporate them in acetate jackets or Filmsort cards. Besides simpler handling and use, these cards, devised by Filmsort Division of Dexter Folder Co., Pearl River, N. Y., provide for the accumulation of related microfilms of any size.

* *Microrecording: Industrial and Library Applications*—By Chester M. Lewis and William H. Offenhauser, Jr. Interscience Publishers, Inc., 250 Fifth Ave., New York 1, N. Y. 456 pp. $8.50.



PHOTOGRAPHS COURTESY OF BURROUGHS CORPORATION

By jotting the indexing meter reading on the film carton for specific records during filming, these records may quickly be traced for reading by advancing the reader indexing meter (the dial at the left) to the number noted on the film carton. Machine at right is combination microfilm reader (left hand element) and microfilmer. The dials are on the projecting ledge of the reader.

Someone in the municipality should acquaint himself with the preparation, filming, and filing of records, even if the work is to be performed by a microfilm service company. A useful booklet is "A Guide to Microfilming Practices," by American Library Association, 50 E. Huron St., Chicago 11, Ill.

Microfilming Equipment

The necessary materials are well known, extremely dependable, and made by institutions whose names have become household words in the municipal field: Burroughs Corporation; Diebold, Inc.; Recordak Corporation; Remington Rand. The equipment consists of film, camera recorder, reader, and storage equipment.

Microfilmers (cameras) range from $500 to $10,000, depending on speed of operation. They are of flat-bed type, cabinet, desk, or portable type.

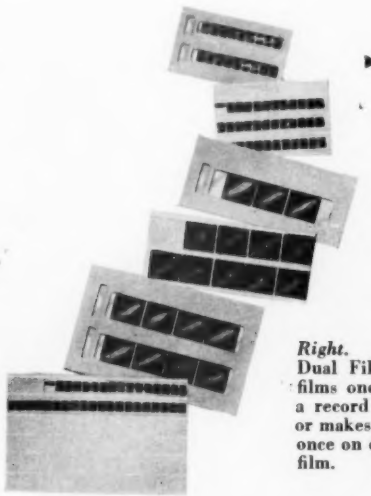
Burroughs equipment includes a microfilm recorder for 16mm film that runs at speeds up to 400 documents per minute. A feature consists of two indexing meters serving both the reader and the recorder sections of the machine.

A Diebold portable motorized camera weighs only 20 pounds and can be carried from department to department. It uses magazine-loaded film for simplicity. Its price is $750.

Remington Rand offers several models, including the Dual Film-A-Record for 16mm or 35mm film and speeds to 500 pieces per minute. This firm also offers the Microdex—a modern method of indexing on film. Examples of practical microfilming are given by Wayne County (Detroit, Mich.) and Franklin County (Columbus, Ohio) where microfilming has been county-wide using Remington Rand Film-A-Record.

Readers are available for projection of images on cards or on transparent film. The Filmsort offers four models, accommodating either roll film or film in jackets. The portable model weighs only 20 pounds. Remington Rand's several types of film reader are for cards or jackets. Facsimile photocopies can be made in the readers sold by Burroughs, Diebold, Recordak, and Remington Rand.

Finally, the microfilmed records must be indexed for ready finding and viewing. The contents of each reel must be obvious. Whether the microfilms are in rolls or on cards or strips, each record should be identifiable. Microprints are 6 inches x 9 inches and contain as many as 100 pages of a book. They are stored



Left.
Protective Filmsort acetate jackets for holding sheet film.

Right.
Dual Film-a-record that microfilms one side or both sides of a record at once side by side, or makes two identical copies at once on duplicate rolls of 16mm film.

PHOTOGRAPHS COURTESY OF REMINGTON RAND

in cases holding 3 inches or 200 sheets, each indexed. The producer is the Readex Microprint Corp., 100 Fifth Ave., New York, N. Y. A booklet entitled "A Guide to Indexing" is available free from Diebold, Inc., Norwalk, Conn.

Microcards are 3 inches x 5 inches and contain 36 or more pages of copy. They are consulted in a projector or with a hand lens. Index data are given on the reverse side and are readable without enlargement. Microlex cards are 6½ inches x 6½ inches and hold up to 200 pages on each side. They're products of Microlex Corp., Rochester, N. Y.

Another flat form is the aperture card, or jacket, for indexing and filing several microfilm strips or frames relating to the same subject.

Microfilming, sometimes referred to as microrecording, has already advanced beyond the original objective of photographing records in miniature to preserve them against fire and enemy attack and to regain space preempted by the original records. The new objective is to get records in such shape and with such comprehensive and clear indexing that the information they carry can be located quickly and placed in relation with the significant data of other records.

This new book, "Microrecording," by Chester M. Lewis, chief librarian of *The New York Times*, and William H. Offenhauser, describes and interprets the requirements of a micro-recording program, including the equipment and materials involved. It is presented as information essential to getting the best results possible in microfilming.

How People Travel in Metropolises

FOR a nation with 60,000,000 motor vehicles, relatively little has been accomplished towards adapting the city to the automotive age. Traffic growth and changing vehicle technology that have rendered urban highways inadequate have also increased the cost of taking the necessary remedial steps.

The Cost of Expressways

Expressway costs in the period since the war have far exceeded the most elaborate prewar requirements. In Boston, three miles of the Central Artery cost $125,000,000. The first section of the elevated expressway, 1.7 miles long, required 2.7 miles of ramps. Total cost was $57,000,000. Ten miles of the Hollywood Freeway in Los Angeles required outlays of $55,000,000, and eight miles of the Congress Street Expressway in Chicago cost $50,000,000. In Detroit, the first 24 miles of the expressway system will cost over $200,000,000. A third tube of the Lincoln Tunnel in New York will cost $3,000,000 more than the original pair of tubes with their approaches. The five-mile Cross Bronx Expressway involves a cost of over $22,000,000 per mile, and an eight-mile connection between the New Jersey Turnpike and the Holland Tunnel, including a high-level bridge across Newark Bay, will cost $114,000,000.

Closely related to the construction of modern highways is the task of furnishing terminal space for vehicles moving over the new roads. The provision of terminal facilities for automobiles as well as commercial vehicles has now been widely recognized as a public responsibility wherever adequate facilities are not otherwise being provided.

Major attention has been directed to the problem of furnishing off-street parking for the passenger car. Automobile parking at the curb meets only a fraction of total parking needs. The urgent need for providing parking space off the street, however, has not been met. Efforts generally have been unplanned as to location and unrelated to the highway system and the traffic problem as a whole. In central cities trucks have often no place to load or unload except in the street, and relatively little has been done to meet the terminal requirements of local bus transportation.

Only in recent years has there been state enabling legislation that permits cities to cope with their parking problems. This legislation confers on the municipality the right to acquire land, issue bonds, and engage in garage and parking-lot operation. Zoning ordinances require off-street parking accommodations in all new or substantially remodeled buildings.

Decline of Mass Transit

The trend away from public carriers is indicated by figures of consumer expenditures. Consumers in 1954 were spending nearly $27 billion per year for transportation, of which $23.7 billion was spent for automobiles and their operation. This outlay for automobiles compares with $2.2 billion spent in cities for local public carriers. Expressed in 1947 dollars, the increase in expenditures for local public carriers was from $1.6 billion in 1941 to $1.8 billion in 1954, whereas private automobile expenditures rose from $11.2 billion in 1941 to $20.1 billion in 1954.

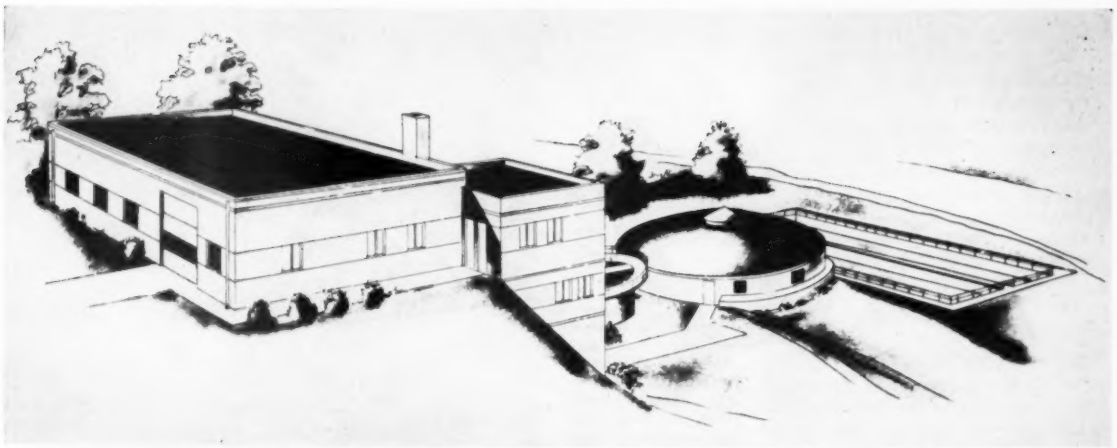
The decline of mass transportation fails to reflect the continuing importance of public carriers in the rush hours. In Philadelphia, during the 24 hours of a typical weekday, mass transportation accounted for 50% of the total trips leaving the central area.

What can activate public transit? Only 10 years ago modern vehicles with superior comfort and speed features looked to a restoration of transit as a community force. Then new types of vehicles were envisioned. Rapid transit has been built in the mall of some superhighways and this is urged as regular procedure wherever mass transit is indicated on these intercity routes. The one thing lacking in all the old panaceas which are still echoed is the logical and inevitable placement of public transit in a modernized arrangement of urban traffic.

The Traffic Strainer

This modern arrangement is what is called Every City a Traffic Strainer. This calls, first, for one or more belts or rings of streets around the business district (1) to deflect or guide through traffic away from the central business district and (2) to serve as a tie between fields providing long-time of commuter parking. In the larger cities the circumferential freeway is served by public transit. The virtual absence of through traffic, of aimless traffic and of all-day parking permits fast travel by the city transportation vehicles and gives added incentive for more people going to the central business district. In this direction lies the essential use of public transit as the logical, and often necessary, mode of travel.

EDITOR'S NOTE: This article is comprised of excerpts from "The Metropolitan Transportation Problem," by Wilford Owen for the Brookings Institution, Washington, D. C., 1956. Price $4.50.



The plant design takes full advantage of its hillside site, as shown by this architectural rendering.

Complete Sewage Treatment Was Less Costly

International Falls, Minn., saved money by constructing a separate sewer system and sewage-treatment plant with both primary and secondary purification

By ROBERT J. ELLISON
Consulting Engineer
St. Paul, Minn.

INTERNATIONAL FALLS is helping itself economically by building a new sewage-treatment plant to clean up the Rainy River. This community of 5,000 persons is located in the heart of the fishing and hunting country along the Canadian border. Although it boasts of a large paper mill it is still partially dependent upon the tourist trade. Both fish and the tourists would leave if the river remained polluted.

The city's combined sewer system for many years has caused trouble. First, it has dumped raw sewage into the river, whose flow is only 4,000 cubic feet per second. Next, it has been too small to receive the sudden influx of storm water without flooding basements and causing a great deal of inconvenience and damage. Local residents have long realized the need for improvement in their municipality.

Separate System Prevents Stream Pollution

These anticipated improvements began to look real on December 19 of last year when the city received bids for construction of a city-wide storm-sewer system and a complete sewage-treatment plant. The new storm sewers will remove all storm water from the present system and thus eliminate flooded basements. Sanitary sewage will flow through the existing sewers to the new treatment plant, and thereby prevent pollution from damaging the river waters.

Bids Received

The principal bid on the sewage-treatment plant included secondary treatment with chemical treatment of sludge. The city requested an alternate bid covering standard digestion in lieu of chemical treatment. The low principal bid was for $301,370, or $52,010 under the lowest alternate bid. It was interesting to note that, based on actual bid prices, a design for primary treatment alone using separate sludge digestion, would have cost approximately as much as the "complete" treatment plant using chemical treatment of sludge.

The new plant, designed by the author's firm, will effectively process the wastes from an equivalent population of 10,000 people. Design data is based on a normal average flow of approximately 750,000 gpd, a normal peak flow of 750 gpm, and an extreme peak load of 1,500 gpm. The raw sewage has a BOD of approximately 300 ppm and the plant effluent will have a BOD of about 30 ppm.

Treatment facilities consist of a mechanical bar screen and macerator grit removal, primary and final settling, filtration, chlorination, and chemical treatment of sludge.

Gravity Flow

The entire plant operates under gravity flow with recirculation provided by three pumps. Sewage first passes through the bar screen, macerator, and grit chamber into the Parshall flume. Here a Burgess-Manning Penn Instrument meter automatically measures, records, and integrates the amount of sewage entering the plant. The meter's transmitter is located at the flume, and the recording device is mounted on the control room wall.

The Spiraflow primary settling tank is 28 feet in diameter and, at design flow, has a rating of 1,200 gallons per square foot per day.

(Continued on next page)

This rate increases to 1,800 and 3,500 gallons per square foot for peak flow and extreme high flow, respectively. The tank includes a Spiraflo-type mechanical unit for collecting the settled solids. Lakeside Engineering Corporation of Chicago supplied the sludge collecting mechanism. The bar screen, macerator, grit chamber and final settling tank equipment was furnished by the Link Belt Company of Chicago.

Recirculation

High-capacity-type distributors, furnished by Lakeside Engineering Corporation, spread the primary settled sewage in a rainlike spray over the entire filter bed. The 66-foot-diameter unit contains 6 feet of filter media made of prefabricated clay known as Aeroblock and manufactured by the Red Wing Sewer Pipe Corporation. This media is designed on the basis of handling a BOD loading of 3 pounds per cubic yard.

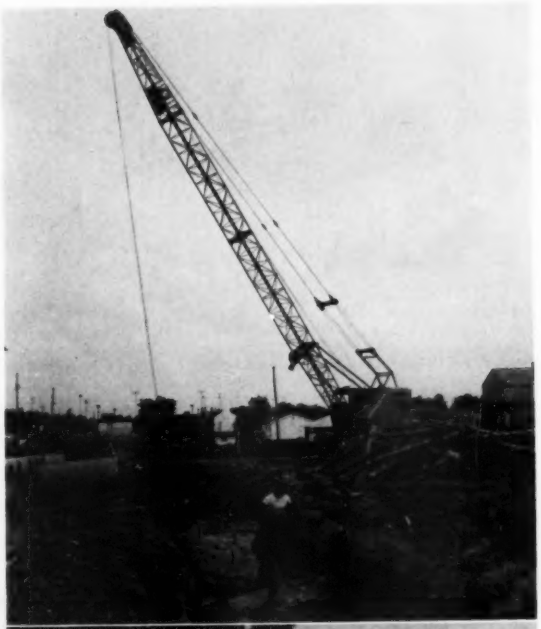
The flow from the primary tank to the filter is augmented by recirculating final effluent liquor in sufficient quantities to maintain a uniform flow of approximately 1,500 gpm. The three Fairbanks-Morse pumps used for this purpose are rated at 500, 650, and 900 gpm against a 20-foot total dynamic head. A Healy-Ruff float control actuates the recirculation pumps according to the head condition on the filter.

Final settling is accomplished in a rectangular tank 40 feet wide by 64 feet long. A solid wall divides the tank into two independent units. The design rate is 800 gallons per square foot at a flow rate of 1,500 gpm.

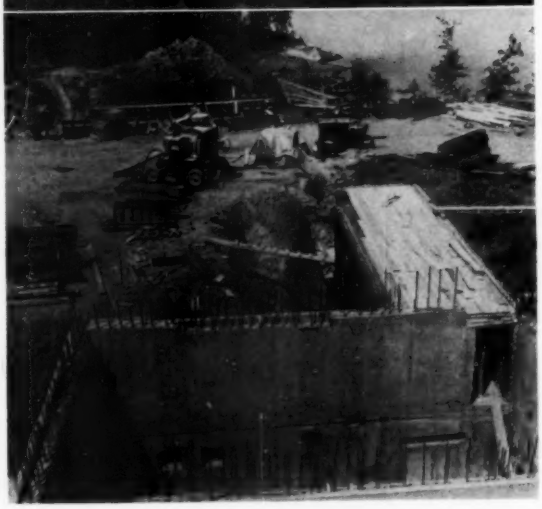
Effluent from the final settling tank will pass through a chlorine contact tank before it is discharged into the Rainy River. The chlorine contact tank has baffles for mixing purposes and under normal flows will provide a 30-minute detention period. Wallace & Tiernan furnished the chlorinator to be used for disinfecting the plant effluent.

Sludge Disposal

A Ralph B. Carter Company sludge pump, rated at 120 gpm against a total dynamic head of 100 feet, will pump the sludge from the settling tanks to a 500-gallon concrete tank. Here anhydrous ferric chloride will be added at the rate of about two pounds per 100 gallons of sludge, the mixture stirred for 20 seconds, and then passed to sand beds for dewatering. The beds are approximately 10 feet by 20 feet in size and provide a total area of 2,100 square feet. Dewatering of sludge on the beds will take from 6 to 10 hours. The total volume of sludge to be hauled approximates two-thirds of a cubic yard per week, and it must be hauled at least once per week in summer. During the winter months it can be spread in thin layers on the ground near the plant site.



New storm sewers will permit the removal of all storm water from the sanitary system. Note rock excavation and remains of an old corduroy road.



Completion of the treatment plant will eliminate the dumping of raw sewage into the Rainy River. Lower portion of the control house is in the foreground; the final tank under construction is in the background.

PHOTOS ON THIS PAGE COURTESY OF INTERNATIONAL FALLS DAILY JOURNAL.

Control House

The control house contains all the valves controlling plant operations, thus eliminating the need for the operator to go outside to change procedures. Sludge lines from all tanks lead back to the sludge pump in the control house and all control valves for the lines are located adjacent to the pump.

The fourth, or main floor, includes the office, washroom, and chlorinator room. A laboratory occupies the third floor. The second floor houses the heating unit and storage facilities. The sludge pump, recirculating pumps and other equipment is located on the first floor. The building is to occupy a hillside site and the main entrance will lead directly to the fourth floor.

Construction is now well under way and we expect to put the plant into operation during the early part of 1957. Once in operation, the plant will eliminate the need for dumping raw sewage into the Rainy River.

Commercial Weather Forecasting Pays Dividends

Park Ridge, Ill., keeps its snow and ice crews constantly alert without interfering with routine duties

By J. L. GALLOWAY, *City Manager, Park Ridge, Ill.*

EVERY city administrator had to recognize that today a municipality lives, thrives, and progresses on the wheels of its cars and trucks. A snow storm that paralyzes traffic can rob a city as brutally as can gangsters. A bad ice storm can do more damage than a major fire. From the simple standpoint of responsibility to the public, we have to provide methods that continually alert us, yet permit us to continue our routine duties.

The specialized weather forecasting service that we now use plays a key role in such a program. We feel that the service of the consulting meteorologists permits our crews to work much more effectively. It enables us to get the maximum effectiveness from our available equipment by allowing it to continue its normal operations rather than having it lie around waiting for snow that was supposed to arrive. It also helps eliminate overtime because of the more precise nature of the forecasts for our particular city. Furthermore, these specialized forecasts permit us to bring our equipment into operation at the strategic moment when the weather dictates. Snow and ice conditions do not get a head start to complicate the work of our crews. Finally, with the help of these forecasts, the public has seen fit to compliment us on the work, both through favorable newspaper comment and specific individuals and groups.

Murray and Trettel, consulting meteorologists, located in Skokie, Ill., provides us with this service. When a storm is within 100 miles of the city, these forecasters send us a "general alert." During working hours this is received by a telephone call to our street foreman. At night, the Police Department gets the alert and relays it to the foreman.

If we receive the call during working hours, the foreman prepares all equipment available in the shop for immediate action, but trucks on other jobs remain at work. When the alert is received at night, we take no action.

If the storm continues to approach the city, the meteorologists then follow the general alert with a "storm warning," and give an estimate of how the storm will act. This information also is telephoned in the manner previously described, and is aided by a detailed numbering system on a detailed report form given us by the meteorologists.

Snow Plowing and Ice Control

At this stage, all equipment is called in as soon as reasonably possible and prepared for snow and ice control. If the warning arrives at night, the street foreman calls in key personnel to service the trucks. When snow or ice begins to fall, all personnel are called, and the work swings into action in earnest.

Park Ridge is a city of 23,000 persons and has 98 miles of streets. Of these, we clear the snow completely from 2 miles in the downtown area, and plow open 90 miles. We can expect somewhat over 30 inches of snow each winter and an average five storms requiring plows. Our crews can expect icy conditions around 30 times each year.

For snow-plowing, we use six one-way plows and two V-plows. Of these, five plows are 1-way tipping and one is a reversible tipping. To pick up the snow, we have one Pneu-Hydro conveyor loader and one Hough Payloader that can be equipped with a V-plow if desired. We also have one Fordson tractor used for sidewalk plowing.

For ice control, we use salt only, applied at the rate of 1½ tons per mile to a width of 44 feet. For this, we use Tarco "Scotchman" spreaders quickly attached to any of our dump trucks. The use of salt alone gives us quick pavement clearance, easy drainage in our storm sewers and catch basins, and eliminates the troublesome and expensive problem of picking up sand and cinders during the spring cleanup period. We keep 80 tons of rock salt on hand in bins at the start of every winter.

Special forecasts permit Park Ridge to get its plows into action (top) well ahead of trouble. (Below) Front-end loaders scoop the snow off the streets in the downtown area of the city.

To finance this work, the city uses funds from a local vehicle tax and from the state-collected motor fuel tax. Illinois returns a portion of this tax to its cities, recognizing that a substantial amount is raised from cars and trucks traveling on city streets.

We always try to keep our entire program on as fast and efficient a basis as possible, recognizing that cities today depend on the smooth operation of their cars and trucks for economic sustenance. The use of this detailed weather-reporting service has gone a long way toward keeping workers constantly on the alert while not interfering with the day-to-day duties these same men perform.

The Meter May Not Be to Blame

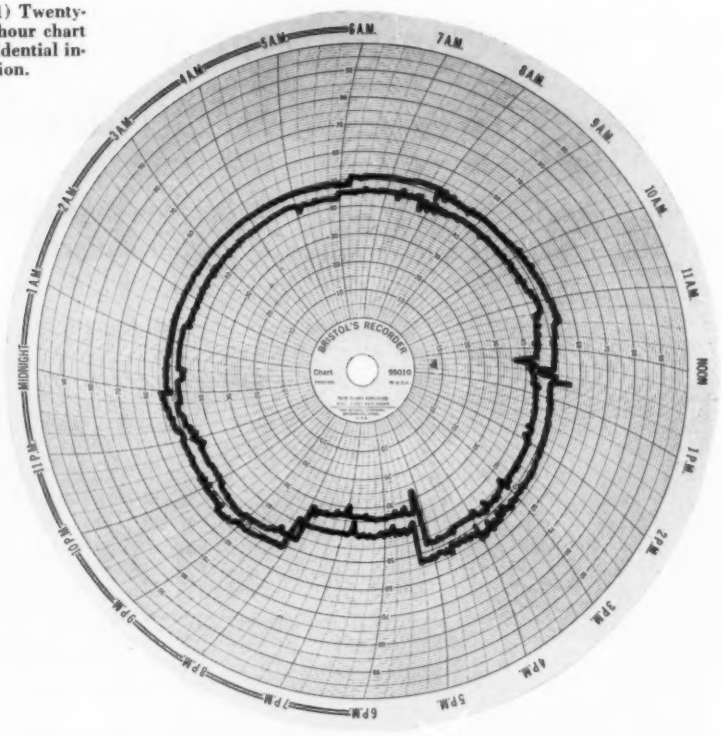
By JOSEPH E. YOUNG
Superintendent
Public Service Department
Moorhead, Minn.

MANY customers feel that meters themselves cause most low-pressure conditions. The system of naming meters according to pipe sizes tends to back up the customer's opinion. However, we believe that in most instances, considering meter accuracy and over-all economy, the proper meter size is generally smaller than the service entrance pipe. There are exceptions, such as short service pipe installations or pump installations on the house side of the meter, that call for meter sizes equal to or larger than that of the service pipe.

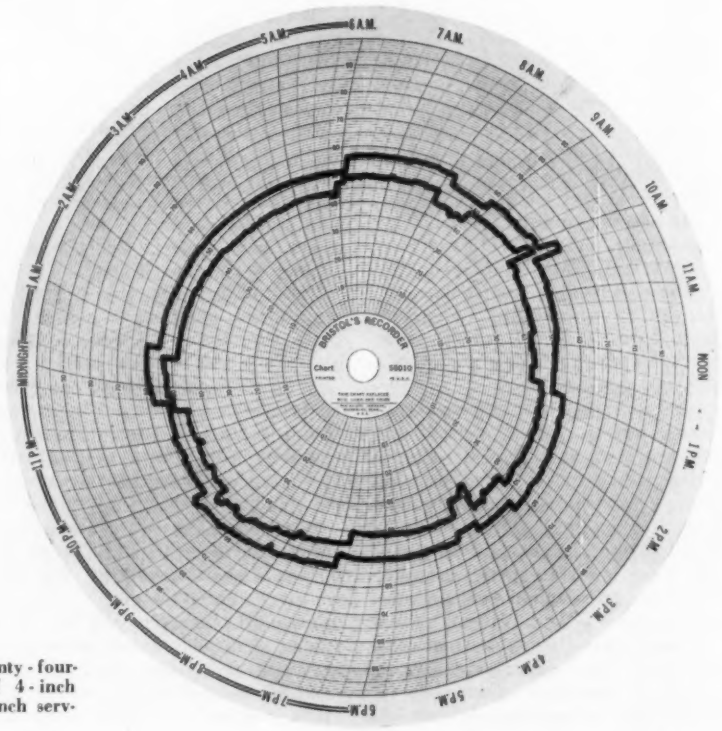
We have found two-pen pressure recorders a great aid in securing information on pressure losses in the service pipe and meter, in determining actual meter operating conditions, and in convincing the customer that in most cases the meter is not causing his low pressure problems.

We installed this device principally to investigate complaints of low pressure, but have also found it useful in confirming our selection of meter or service pipe sizes. Although the number of low pressure complaints is relatively small, the normally complete satisfaction of the customer is well worth the effort required to make the test. Also, the gain in better public relations cannot be summed up as a dollars-and-cents item.

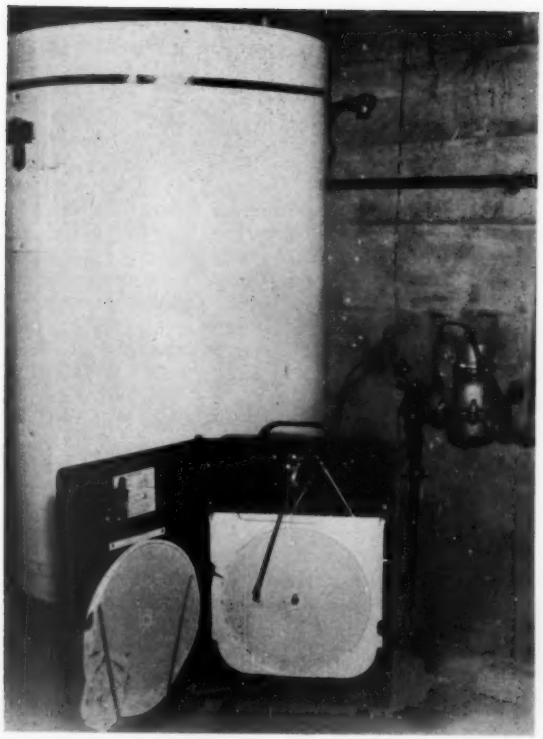
For example, the department received several calls from a customer located in an area previously free from complaints. The recording device showed an exceptionally large pressure drop through the meter and couplings. Closer examination



(Fig. 1) Twenty-four-hour chart of residential installation.

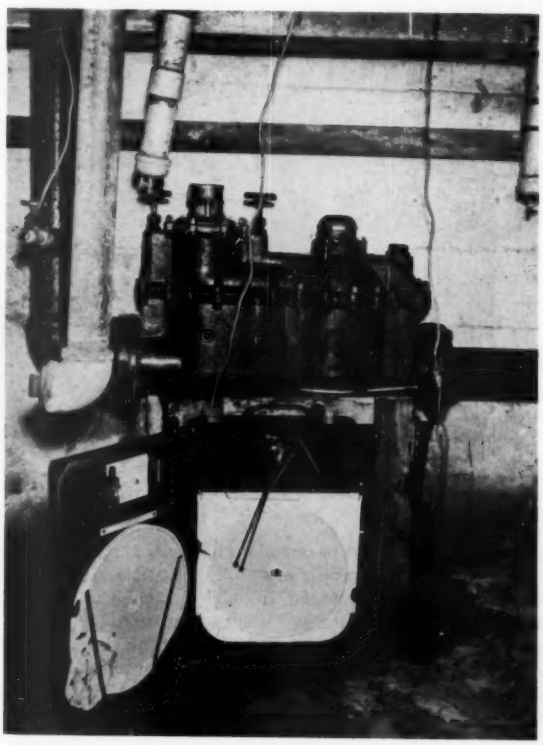


(Fig. 2) Twenty-four-hour chart of 4-inch meter on a 6-inch service line.



The Bristol two-pen instrument convinces most customers that meters do not cause large pressure drops.

Moorhead, Minn., develops two-pen pressure recorder system to pin-point head loss in meters and service lines



It is often advisable to install surge pipes in the connecting piping to reduce the travel of the recording pens.

showed that the couplings were clogged with a deposit resulting from an electro-chemical action between an iron bushing and a copper coupling. Removal of the deposit corrected the low pressure condition and another satisfied customer was added to our list.

Operation

One pen of the Bristol instrument is attached ahead of and adjacent to the meter and the second pen is attached to the house or outlet side of the meter. Two colors are used, red for the inlet pressures and blue for outlet pressures. To further clarify the picture, the inlet or red pen is set to record true time and pressure. This is the outer ring on the chart. The outlet or blue pen is adjusted to an approximate 15-minute time delay and records a pressure five pounds lower than true pressure. This adjustment avoids confusion in reading the two lines, especially when fresh ink from the two pens overlap and smudge the chart.

Figure I shows a typical chart made on a residential installation that might be considered as using a little more water than the average customer. This customer uses about 3,000 gallons per month during most of the year and about 12,500 gallons per month during the sprinkling season. The installation consists of a 5/8-inch meter attached to a 3/4-inch service line approximately 100 feet long. A 6-inch main feeds the service.

On the day this test was made, no water was used between the hours of 12:00 midnight and approximately 7:00 a.m. This is shown by the relatively constant pressure differential of five pounds at which the pens were originally set. The slight variance shown by both lines is caused by pressure changes in the main. After a period of intermittent use of water between 7:00 a.m. and 8:20 a.m., the chart indicates no further use until 10:40 a.m. Short intervals of water usage are shown throughout the day until about 5:20 p.m. when the customer turned on a lawn sprinkler.

This sudden use of water caused a surge accompanied by a 30-psi pressure drop on the inlet side of the meter. A widening of the pressure differential from 5 psi to 8 psi also occurred in the service line; the meter was responsible for only a 3-psi loss.

According to Hersey Manufacturing Company charts for this type of meter, a 3-psi drop through a 5/8-inch

meter indicates a flow of 11.5 gpm. It is interesting to note that the Cameron Hydraulic Data Book shows that if the indicated flow of 11.5 gpm through this particular service pipe (¾-inch diameter, 100 feet long) were increased slightly less than one gallon per minute, the total pressure drop in the service pipe alone would be as great as that caused by the meter.

These figures indicate that, if the customer wants better service, a 1-inch service line would be the answer. A 1-inch service pipe and ⅝-inch meter would deliver about 20 gpm with the same head loss as that produced by the existing installation supplying only 11.5 gpm. Further check shows that during the three hours of sprinkler operation only about 1-psi pressure drop out of an average pressure of 40 psi at the meter was chargeable to the meter. The sprinkler was turned off shortly after 8:00 p.m., and the pressure returned to the more normal 50 psi.

Confirms Meter Choice

Figure II shows the chart made from testing a 4-inch compound meter on a 6-inch service pipe approximately 70 feet long. This customer used water during the entire test period, so the chart does not record pressures with the service not in use. Water consumption at this installation averages about 100 gpm.

The pressure at the inlet side of the meter varied between 49 and 60 psi and the pressure differential between the two pen recordings ranged from 6 psi around midnight, when the pressure was at its highest point, to about 8 psi at 4:00 p.m., when the pressure was at its lowest point and water consumption amounted to approximately 440 gpm.

This chart shows no excessive pressure drop chargeable to the meter. Flows of more than 300 gpm occur only for short periods and are readily handled by the meter. The record indicates that the 4-inch meter provides adequate service and is therefore suitable for this installation.

The graphic record made when the pressure recorder is attached not only provides the foregoing information, but aids greatly in explaining causes of pressure loss to the customer. The charts are much more effective and convincing than a verbal dissertation on the hydraulic principles involved.

This simple frame was fabricated in the city garage. It bolts to the Payloader bucket, which can transport individual machines to voting precincts, if desired (top right), or pick them up and load them onto a truck for multiple delivery (right).

Voting Machines Get Loader Transport

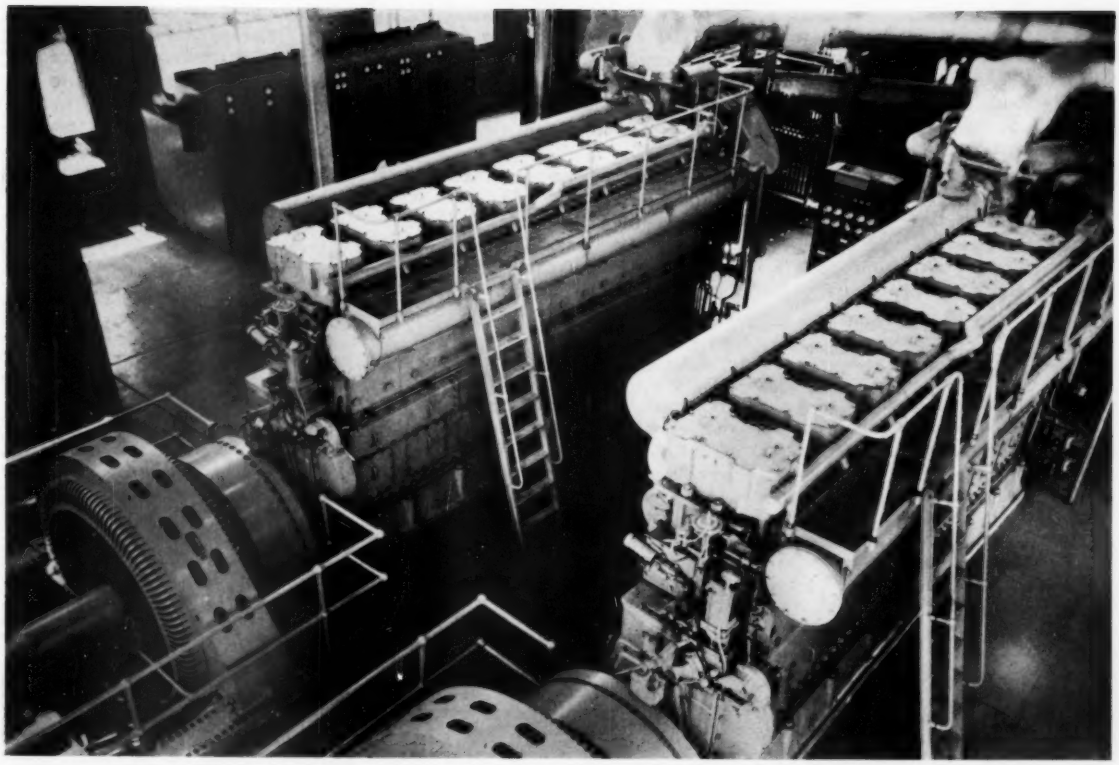
By W. H. LANGE, *City Administrator Grosse Pointe Woods, Mich.*

NO one questions the fact that voting machines are a virtual necessity in any well-ordered modern election. Earlier this year, Grosse Pointe Woods purchased 25 Shoup voting machines, thereby relieving the burdensome problem of tallying votes accurately at a time when workers are tired, and delays in getting the results add to the election tensions.

However, the practical problem still remained. How were we to move the machines out of storage into the voting areas easily? A $25 angle-iron frame bolted to our Hough Payloader solved the problem.

The frame was developed in our municipal garage by Public Works Superintendent Fred Hansen and his assistant, Al Hershberg. It has an ample platform that is bolted to the bottom of the bucket. The frame has a strap that is adjustable by a turnbuckle, and this holds the machine firmly during the moving operation.

This is only one of the tasks that we assign to our Payloader, probably the most versatile machine that we have in the municipal garage.



The two big dual-fuel engines spell reliable power at a thrifty price in Franklin, La.

Franklin Goes Dual Fuel

Louisiana bayou city modernizes a plant serving a historic area

FRANKLIN, La., is a little southern city established by a Yankee from Pennsylvania in 1808, who named it after his friend Ben Franklin. It is in an area steeped with romantic lore made famous by Longfellow's poem, "Evangeline." However, while Evangeline never found her Gabriel, present Franklinites have no such difficulty finding electric power. They can develop the kilowatts needed, getting them at a thrifty price.

The city lies in the bayou country in southern Louisiana just north of Vermillion Bay. It has a steadily increasing population, now just topping 8,000, and a booming electrical load. In the past six years the load has nearly doubled, reaching almost 10,000,000 kwhrs per year. The area is rich in oil and has become well known for its carbon-black industry.

In this rather isolated area, if the people wanted electricity, they had to supply generating facilities themselves, and they did just this, starting in 1898 with a small steam plant. This plant was expensive to operate, however, and was quickly abandoned when diesel units became available in 1916. From then on, the financial picture of electric generation here took a rosier hue. As years went by, larger engines replaced smaller in keeping with the climbing demand curve. But in 1955, the major change came that promised even greater savings.

Call for Advice

That year, peak loads threatened to exceed the firm power capacity of the plant, so Mayor W. McKerall O'Neill and his city administration retained the Baton Rouge consulting engineers, of Barnard and Burk to make recommendations. Their advice was to switch from straight diesel and part straight-gas engines to dual-fuel engines for better reliability along with economy.

Acting on this advice and using plans prepared by the engineers, the city purchased two Worthington dual-fuel engine-generating units, each able to generate 1,397 kw.

The new engines required some thought to be fitted to the old plant. Two old engines had to be removed, along with the entire forepart of the old building. A new brick addition had to be supplied to house the new equipment. A new cooling tower now is located in the northeast corner of the property with water lines so routed to allow future installation of additional tower sections. An

area paralleling the new engines was kept clear of accessories and pipes so that new units can be added and the building extended when needed.

Underground steel piping received thorough protective coatings, consisting of two hot applications of pipeline enamel followed immediately with a layer of Fiberglas pipeline wrapper. This was followed by a third coat of enamel and a layer of 15-pound asbestos pipeline felt and a layer of heavy kraft paper.

Engines

The Worthington engines are 8-cyclinder, 16-inch bore with a 20-inch stroke. They are turbo charged, four-cycle dual-fuel units rated at 1,975 hp and capable of carrying this load continuously. Each drives an Electric Machinery generator rated at 1,397 kw at 0.8 power factor.

A new Westinghouse metal-clad switchgear has been installed with generator and exciter panels for the new units.

For cooling, the engines depend on a Marley, double-section tower with a fan for each section. Raw-water pumps circulate the water from the tower basin through Sims horizontal heat exchangers. One exchanger cools the lubricating oil, and one exchanger cools the jacket water for each engine.

Approximately 10% of the lubricating oil handled by the pumps is bypassed through Honan Crane oil filters and returns to the sump tank. A small motor-driven rotary pump also has been installed with each unit to circulate the oil through the purifier while the engine is not operating. The purifier has electric elements to heat the oil to assure good filtering under this condition.

Exhaust and air intake lines run overhead, with the exhaust insulated and covered with an aluminum jacket. Maxim exhaust silencers reduce noise to a low level. American Air filters, type CMS, clean combustion air, through an oil bath system.

Operation

From an operating standpoint, the engines have been as thrifty as Ben Franklin himself. Pilot oil consumption is only 4% of the total BTU/KW requirements at full load. Normally, pilot-oil consumption will run double this figure, and in this case, means a savings of roughly $4,000 annually.

Special Assessment Improvements Pamphlet

TO the layman, the procedures involved in bringing about a public improvement financed by special assessments are sometimes complicated. Actually, the procedures are fairly simple; nevertheless, certain basic legal requirements must be met—establishing a grade by ordinance, resolution to improve, public hearing, accepting plans and specifications by ordinance, taking bids, confirmation of contract award by ordinance, and, finally, accepting the completed work and authorizing the issuance of tax bills by ordinance. Though these requirements are met and set forth in the city charter of University City, Mo., the citizen may think that the need for them is unnecessary. This then is a challenge to devise good public relations so that the accurate information can be presented and better understood.

Citizens' Committee Appointed

Several years ago a Citizens Public Relations Committee was appointed by the City Council to make a comprehensive study of this city's public relations program with a view of finding ways and means of facilitating communication between the citizens and the city government on matters of mutual concern. Among the recommendations this group passed on to the City Council was one recommending the preparation of a booklet explaining the policies and procedures of the city with respect to special assessment improvements. As a consequence the City Council requested that a booklet be prepared along the lines recommended by the citizens advisory group.

And so "The Story of Special Assessment Public Improvements in University City" was published.

Pamphlet Prepared

Written in brief, readable format, the pamphlet comprises eight pages (two 8½-inch by 14-inch sheets folded) and was printed in two colors by the multilith process on the city's Multigraph machine. The pamphlet was prepared by the two staff assistants to City Manager Elder Gunter under his direction, along with the advice and assistance of the Director of Public Works. Members of the City Council reviewed the preliminary draft and offered constructive criticism and advice in shaping up the public relations message to the best advantage.

Essentially, the pamphlet expressed these points:

1. the general policy of the city with respect to public improvements, and an explanation of special assessment improvements in particular.
2. the legal procedure which must be followed sequentially — resolution to improve, public hearing, adopting plans and specifications, etc.—in order to bring an improvement about.
3. the standards to which streets and sidewalks are to be constructed.
4. the method of assessing costs in special assessment improvements.
5. the policies of the city with respect to sidewalk and alley improvements.

A citizen now gets a copy of this pamphlet when he receives notice of public hearing on a contemplated improvement in his neighborhood, giving him an opportunity to be much better informed on matters of policy and procedure when he appears before the City Council in the public hearing.

Copies of the pamphlet are also given out to interested citizens by the administrative officers of the Department of Public Works. These pamphlets are by no means a replacement for the personal attention the citizen normally receives when inquiring about special assessment improvements.

Other interested cities may obtain the pamphlet by writing to the office of City Manager Elder Gunter, City Hall, University City, Mo.

Census of Governments to Be Made in 1957

THE PROPOSED 1957 Census of Governments will proceed according to schedule with a $1,750,000 appropriation authorized by Congress. The special census, now in the advanced stages of planning, will gather data on the number of local government units in the country, their financial status, municipal employment, and the relationship of assessed value to market value. It will cover all states and will include county governments, municipalities of 2,500 persons and larger, various townships, school districts, and special districts of equivalent size.

Two types of signs that must be erected on properties for which zoning variances or amendments have been requested. Top sign refers to a proposed amendment which would change the zoning classification of property involved. Bottom sign refers to a requested variance.

Zone Change Request

THIS PROPERTY NOW ZONED **B-2**

OWNER REQUESTS ZONE CHANGE TO **B-4**

PUBLIC HEARING WILL BE HELD IN CITY COUNCIL CHAMBER, DENVER CITY AND COUNTY BUILDING JUNE 11, 1956, 7:30 P.M. AND SUCH ADDITIONAL DATES AS CITY COUNCIL MAY ESTABLISH. ALL PERSONS HAVE RIGHT TO APPEAR AT SUCH HEARING FOR PRIOR INFORMATION, CONTACT DEPARTMENT OF ZONING ADMINISTRATION, ROOM 476, CITY AND COUNTY BUILDING.

Denver Zoning Signs "Advertise" Amendments And Variances

Signs erected on affected properties are best way of informing public of requested changes

To Whom It May Concern

APPLICATION HAS BEEN MADE TO THE BOARD OF ADJUSTMENT TO PERMIT ON THESE PREMISES IN R-2 ADDITION TO REAR OF DWELLING EXTENDING PRESENT NON-CONFORMING 4-FOOT, 6-INCH SIDE YARD. ALL PROTESTS MUST BE MADE AT OR BEFORE PUBLIC HEARING TUESDAY, MAY 29, 1956 AT 12 NOON, ROOM 469, CITY & COUNTY.

IN Denver, where a comprehensive zoning ordinance was adopted a year ago, the Department of Zoning Administration makes good use of signs to keep citizens informed of pending amendments or variances to the city's zoning law.

Posting Procedure

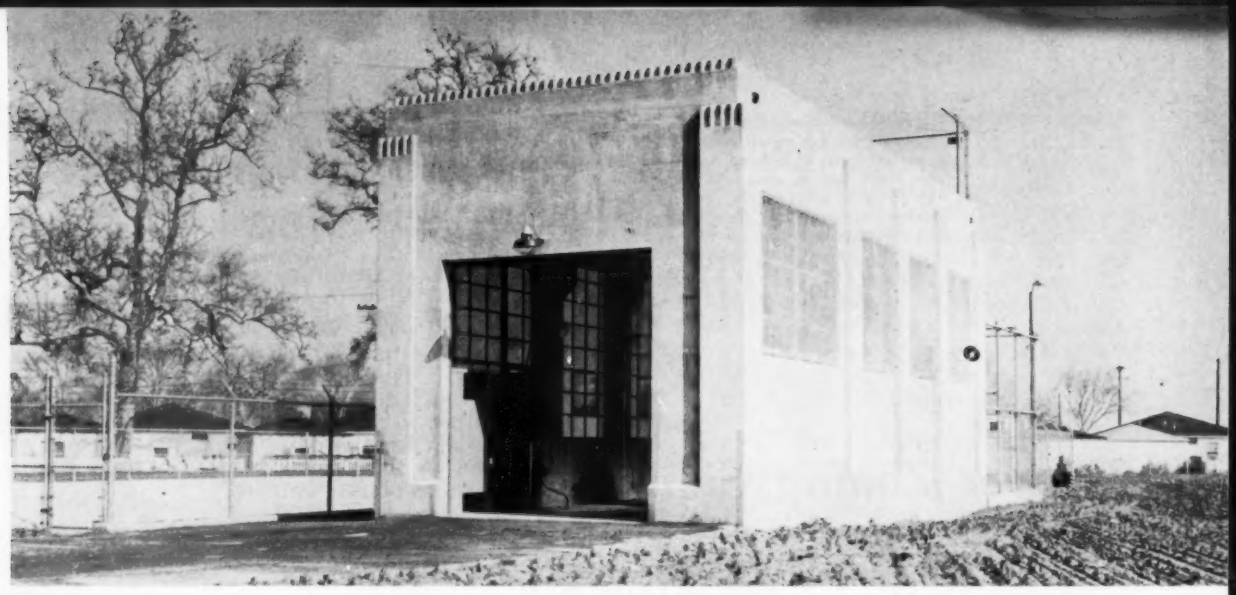
Denver's present zoning ordinance, effective since February 1955, establishes a sign posting procedure requiring that "any area for which an individual application for a change in zoning classification is being considered, shall be posted for at least 15 days" prior to the public hearing required for all zoning changes or variances. Under this regulation a sign at least 3 feet by 4 feet in size must be erected on the property slated for possible redistricting. The sign carries information about the proposed rezoning (such as change in classification, etc.), the date of the public hearing, and the notification that all persons have a right to get further information from the Department of Zoning Administration and to appear at such hearing. The posting takes place after the City Council has passed the proposed amendment on first reading. Three readings are required by the Council, which alone has power to act on rezoning under the present law. The public hearing is held at the same meeting of the Council at which the second reading is heard. Since the ordinance requires posting for at least 15 days, the Council allows a three-week interval between the first and final readings. If, as a result of public notice, a legal protest is received, final passage of the amendment requires a three-fourths vote of all members of the Council.

Although this procedure for zoning amendments was adopted last year, the Board of Adjustments in Denver has used the sign posting procedure since 1925 in connection with variance requests. The variance sign, which must be posted on the property in question at least 10 days prior to the hearing, must be 3 feet by 4 feet and contain information describing the changes proposed for the premise.

In each case (zoning amendment or variance) the Board or the Department prescribes the dimensions and language for the sign, and the applicant or appellant pays for its cost. In addition, both the Board and the Department require that notice of the proposed change, the date and nature of the hearing be published once in the official newspaper.

Results

According to John D. McLucas, Denver's Zoning Administrator, the posting procedure has proved "quite effective" in providing the public with notice of proposed changes, variances, or appeals. Where individual interests are involved more Denver citizens have attended the public hearings to ask questions. Sometimes neighbors appear to protest, and occasionally a controversial issue brings a crowd. Since the present ordinance became law, 136 amendments have been approved by the City Council and 10 have been disapproved.



This city-state financed station pumps storm water collected from a low residential area and a large state Freeway underpass to the Los Angeles River Flood Control Channel.

The State Helped Build the Storm-Water Pump Station

Financing was only one of the significant features in Long Beach's city-state storm water project

By JESS D. GILKERSON
City Engineer
Long Beach, Calif.

Designer Robinson is shown alongside one of the large pump motors. Note float wells and Mercoid switches against rear wall of the station.

DURING the early stages of planning the Gordon Street Pumping Station, city officials discovered that the project coincided in time and place with the need of the state to drain a new underpass located nearby. The new underpass carries traffic on the state-built Freeway under Long Beach Boulevard at the foot of Gordon Street.

After studying the situation, the state and city agreed it would be efficient and economical to construct a single station to drain both the residential area and the underpass. Taking into account the city's experience in building 17 storm-drain stations and 20 sewage pumping stations, it was further agreed that the city should handle the project and the state should participate financially. Accordingly, the state contributed $120,000 toward the project and the city assumed the balance. Total cost of the station, exclusive of engineering, came to $228,562.

Unusual Depth

A number of problems peculiar to this particular station made it necessary for us to set all the pumps deeper than at any other station in the city, with one exception. First, the underpass requiring drainage was low; and second, the pump discharge lines had to pass under the Freeway to reach the Los Angeles River Flood Control Channel. It was also necessary

to lay the discharge lines under a 69-inch county sewer line approximately 20 feet deep. To meet these conditions we set the floor of the wet well 31 feet, 3 inches below the station floor.

Three Fairbanks-Morse pumps make up the main pumping units. The single-stage, vertical, mixed flow pumps are each rated at 25,500 gpm against a total head of 28.5 feet. Power is supplied by 250-hp, 700-rpm Fairbanks-Morse induction motors connected to the pumps by 24 feet, 4 inches of column and shaft.

Each pump discharges through 635 feet of 36-inch reinforced-concrete pipe to the Los Angeles River Flood Control Channel. Armco cast-steel automatic drainage gates are located at the outlet end of each line. The American Concrete Pipe and Construction Company manufactured the pipe in 12-foot lengths. They were centrifugally spun and have double rubber gasketed fittings at each joint.

The long, low run of the discharge lines before rising to the flood control channel causes considerable lateral back-pressure on the pumps. We compensated for this by building special bracing into the pump station to support the units. Oversized base plates were fabricated to meet station requirements and reverse spin of the pumps was prevented by using nonreverse ratchets on the motors.

Anchors built into the station walls at strategic points permit the alignment of the pumps by using a block-and-tackle attached to the anchors. Removable gratings and a Wright 5-ton electrically operated bridge crane make it possible and easy to remove the pumps.

Cylindrical Splitters

A notable feature of the station is the "splitters" designed by the City Engineering Department and fabricated at the Fairbanks-Morse Pomona plant. These 18-inch-high, cylindrical "splitters" have baffle plates on the center lines of the cylinders and openings equal to the diameter of the pump's bowl units. They are attached below the pump's suction bowls and are designed to prevent cavitation and eliminate drawdown from water surface to the bowl. In addition, they reduce the intake velocity of the water from 10 feet per second to 2 feet per second. The slower peripheral velocity prevents large, heavy solids in the water from being drawn into the pump and fracturing the bowl. Although the city has experienced broken bowls in other stations, none have occurred in the Gordon Street Station since it started operation late in 1953.

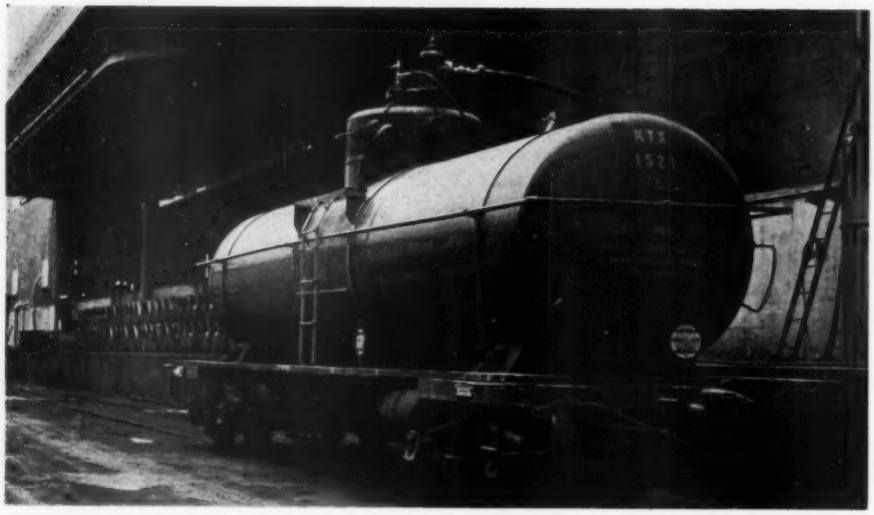
The station also includes a fourth pump that serves as a cleanup unit. This Fairbanks-Morse pump is driven by a 25-hp Unidrive motor and can deliver 1,200 gpm against a 33-foot head. The pump suction extends several feet lower than the main units and is used in the summer months to keep the well floor dry for cleanup and maintenance of equipment.

The station, a one-story building above ground and three below, is constructed of reinforced concrete on a rigid frame entirely supported on steel H-beam piles. It removes storm water collected from 3 square miles in the northern part of the city. Three reinforced concrete storm drains, 42, 48, and 57 inches in diameter, conduct drainage from the residential area and underpass to the station's concrete forebay. The water then flows through a timber trash rack to the wet well. From here it is pumped to the flood control channel.

A primary feeder supplies electric power at 2,300 volts to the transformers located adjacent to the station. Here it is stepped down to 440 volts. Float controls in the wet well activate Mercoid switches which, in turn, activate the motor starters. To prevent all pumps from starting simultaneously after a power interruption, an Eagle Signal Corporation Microflex time meter starts the second and third units 10 and 20 seconds, respectively, after power is resumed. Solenoid oilers for line shaft bearings are energized automatically when the pumps start. Zinsco Electrical Products supplied the control panels, Allen Bradley Co., the motor starters.

The large forebay helps reduce the velocity of incoming storm water and the timber trash racks prevent large objects from entering the station wet well. (Below) Cylindrical "splitters" attached to the bottom of the bowl units reduce the intake velocity, thereby preventing large solids from entering and damaging the bowls.

The Gordon Street pumping station is an excellent example of city-state cooperation to provide needed facilities at minimum cost to the citizenry. J. P. Robinson of the City Engineering Department designed the station to meet 25-year storm frequency requirements. Fred J. Early, Ja. Company of San Francisco was the general contractor.

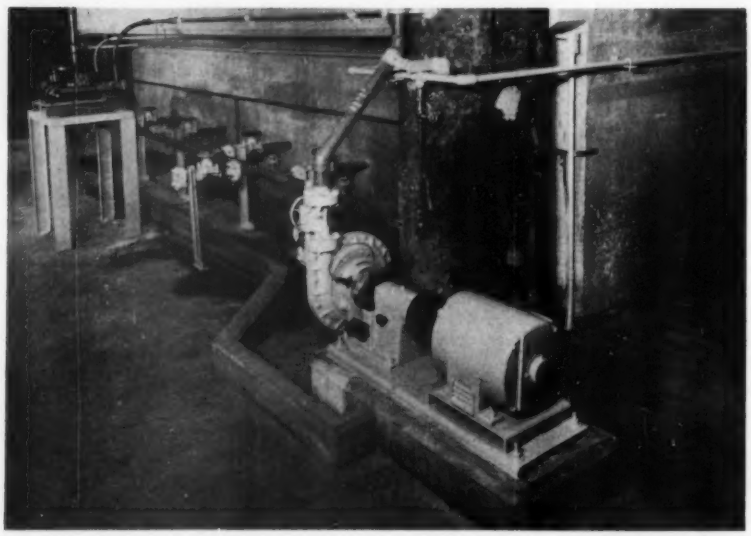


Most of the acid comes to the plant in tank-car lots.

Chicago's Fluoridation System Emphasizes Safety

What went into the nation's largest installation to feed fluorides to the water as a dental health measure

By JOHN R. BAYLIS
Engineer of Water Purification



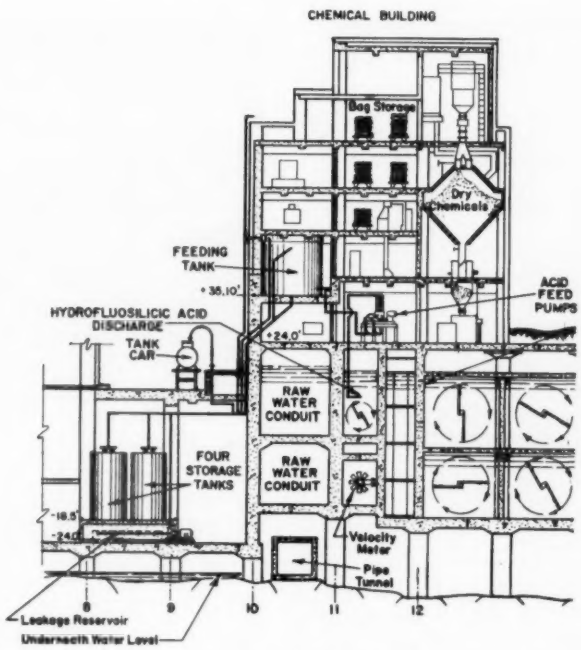
This rubber-lined pump transfers the acids to the feeding tank.

LAST May, Chicago began adding hydrofluosilicic acid to the water of the South District Filtration plant. The measure was instituted at the instruction of the mayor and council with the strong support of local dental and medical groups. Some opposition developed, and for a short time antifluoridation groups picketed the city hall. However, the city administration remained firm in its support of the dental and medical opinion, and the opposition soon subsided.

Our real problem was one of a different nature. When fluorides have to be added to 360,000,000 gallons of water per day, the quantity of fluoride becomes substantial. Hydrofluosilicic acid in these volumes is a real hazard that our design had to overcome.

Storage was the first step. For this we selected four rubber-lined steel tanks, each 8½ feet in diameter and 16 feet high, located in the plant, underneath the railroad track and roadway. They were made small intentionally, so that the fully fabricated tanks could be brought into the plant. Each has a capacity of about 6,300 gallons.

The tanks rest on a platform above the lower floor. Beneath this platform is a reservoir that can collect



This sectional elevation of the chemical building shows where the hydrofluosilicic acid system is located.

any acid that may leak from the tanks or the piping.

Delivery of the acid to the feeding tanks came next. Here, we used an Olivite, rubber-lined centrifugal pump of 30-gpm capacity. A 2-inch suction header connects to the pipes from the four storage tanks. In addition, we have supplied a small acid pump to transfer any leaking acid that may collect in the reservoir underneath the storage tanks. This pump should be half the capacity of the larger, with flexible connections so that it also may be used for transferring acid to the feeding tank in case the main pump is out of order.

Half-inch Uscolite pipe lines extend from the storage tanks to the gauges. Compressed air actuates the gauges. The feeding tank also is provided with an air-actuated elevation gauge.

Feeding Tank

The feeding tank is located on a higher floor level in the chemical building. This tank is steel and is rubber-lined. It has a 16.67-foot outside diameter, and is 13½ feet high with an available capacity of 18,500 gallons.

This tank is located inside a concrete vat that is 18½ feet square and 3 feet deep. The tank was lined in place with rubber, and the rubber vulcanized with steam. It has a steel cover, painted on the underside with a fluorine-resisting coating. The tank had to be erected in place because of its size. We do not place too much dependence on such lining; however, we are hopeful of several years of service before relining is required.

A 1-inch Uscolite pipe connects the tank to the three pump heads of the Milton Roy controlled volume pump.

Venting Lines

In filling the tanks, the displaced inside air may contain a small amount of acid fumes. To prevent this from being turned into a closed room, all tanks have 2-inch venting lines. These connect to a pipeline that extends to the roof of the building.

Leak Catchers

The design has to take precautions against the loss of acid through leakage. Although the inside of the tank is lined with rubber, and plastic piping is used throughout, leaks are bound to occur. Pumps cannot be made leak-tight, and some leakage will occur around the packing glands. We have provided drains to carry such leakage away and not to let it accumulate on the floor.

In addition, holes eventually will develop in the rubber lining of the storage tanks.

The reservoir under the tanks has been provided with capacity enough to hold the content of one full storage tank. We assume that a hole could occur and enlarge to a size sufficient to discharge the entire content within a half hour.

Also, we have to recognize the possibility of leaks in the piping. A small concrete curbing has been constructed around the area to catch such leakage and drain it to the area underneath the plant.

Surrounding the four storage tanks is an area 40 feet square with a concrete curb to prevent large spillage of the acid extending over the floor beyond these limits. All handling of the acid from the railroad car to the storage tanks comes within this area. This in turn drains to a pond of seepage water that is pumped back to the lake at intervals. Thus any amount of fluoride that might escape will be so greatly diluted with seepage water that it will be harmless.

Overflows

The feeding tank has a 2-inch Uscolite overflow pipe connected to the storage tanks. However, overflow acid can be discharged to the seepage pond if necessary.

The four storage tanks are connected together with 4-inch pipes near the top so that the acid will first fill all of the tanks and then overflow through a 3-inch pipe to the area below the lower floor. The bottom of the pipe will have a water seal to prevent fumes from escaping. We doubt that the overflows will be used very frequently. However, they are a safeguard against accidents.

The hydrofluosilicic acid is fed into the water at three places with a 3-feed Milton Roy controlled volume gang pump located on the upper floor. Each pump has a maximum capacity of 43 gallons per hour.

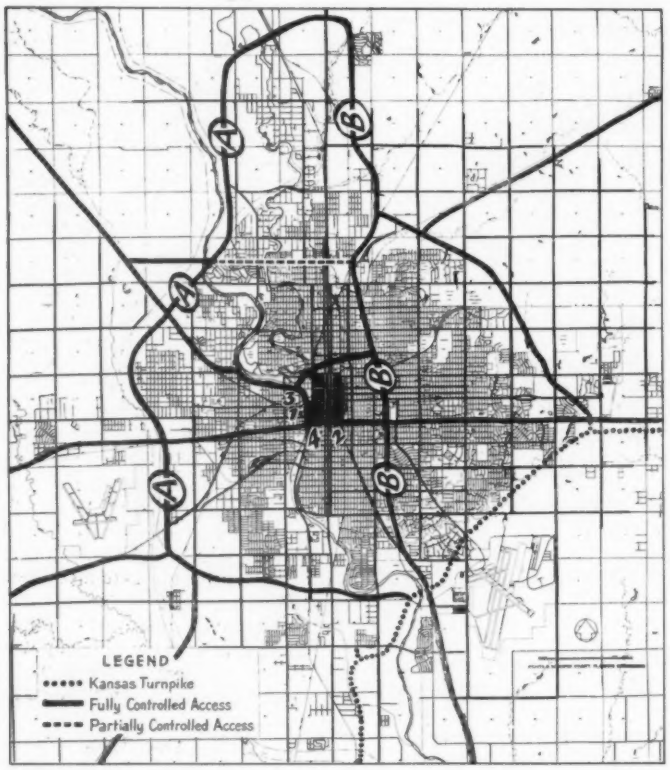
We need 45 pounds of 23% hydrofluosilicic acid per million gallons to get our correct dosage. Thus, when we pump 360,000,000 gallons of water per day, this means that 16,200 pounds of the acid will be required daily, or 1,600 gallons. This is equivalent to 66.7 gallons per hour or roughly half the hourly capacity of the three pumps.

We have received most of the acid

(Continued on page 142)

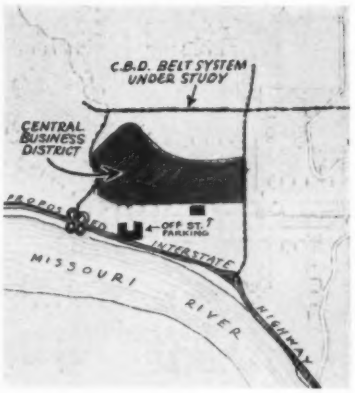
How cities are shaping . . .

The Urban Framework



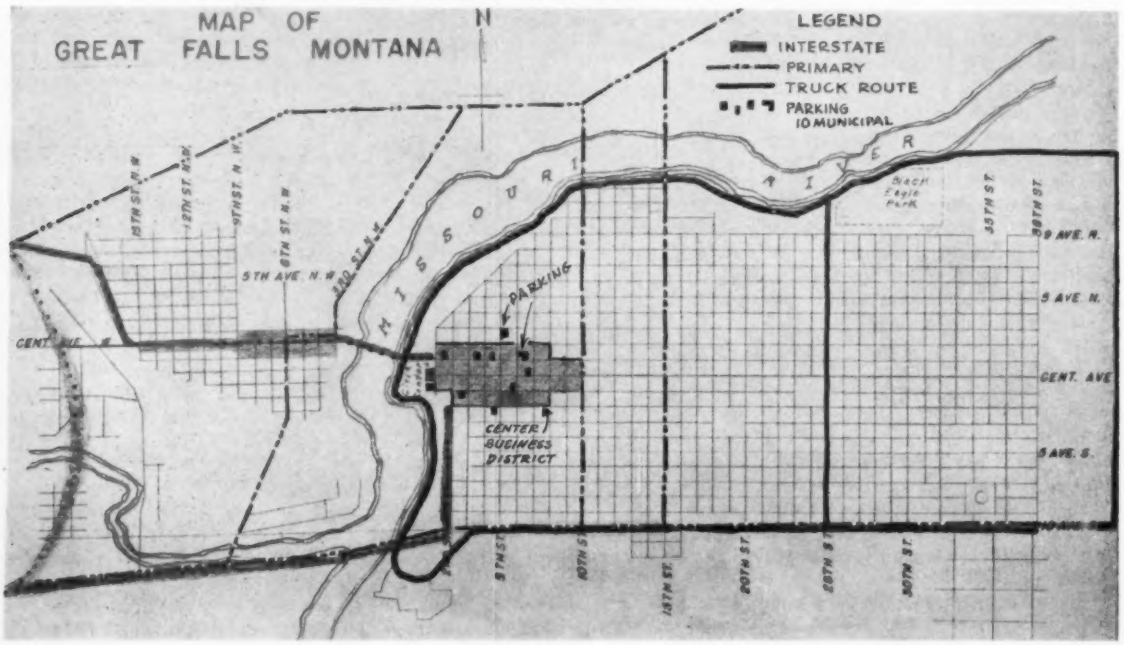
Map shows the Master Thoroughfare Plan of Wichita, Kans., and none of the arterials built as yet. The dotted line marked "Turnpike" will be completed this year. The two routes marked "A" and "B" have been approved by the U. S. Public roads administration as urban extensions to the primary system. The municipal parking facilities have the following capacities: (1) 1,200 cars and shuttle-bus service; (2) 100 cars under viaduct; (3) 150 cars; (4) 25 cars. Capacity of all lots and garages, 7,000 cars.

—GEORGE J. FISHER, *Director of Service, City of Wichita, Kans.*

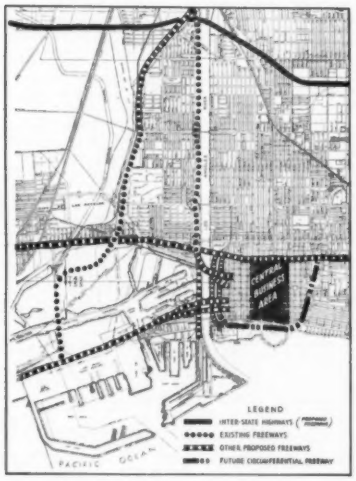


Map of Sioux City, Iowa, showing (a) belt or ring highways or system of connecting streets around the business district and (b) the location of long-time, off-street parking facilities, present or planned, as prepared and under study by the Director of Planning and Zoning. There are several all-day off-street parking lots consisting of one-half or full blocks that are privately owned and operated. Also within the business district, there is a three-story parking garage that is privately owned and provides 275 stalls. Study is under way for two other off-street parking multistory garages, each to cover one-quarter block.

—PAUL V. ROBERTS
Director of Public Works
Sioux City, Iowa



to the State Highway Plan



Map showing how the City of Long Beach, Calif., proposes to connect the Central Business District with the proposed Interstate Highway System. In 1955, the Central Business District had 7,000 off-street parking stalls and 2,500 curb parking stalls, mostly served by Dual and Turret meters. We have no program whereby the City of Long Beach proposes to construct off-street parking facilities. However, local merchants and property owners have encouraged parking-lot organizations to provide additional off-street parking lots in the central business area. This program has resulted in a considerable number of additional parking lots for customer and employee parking.

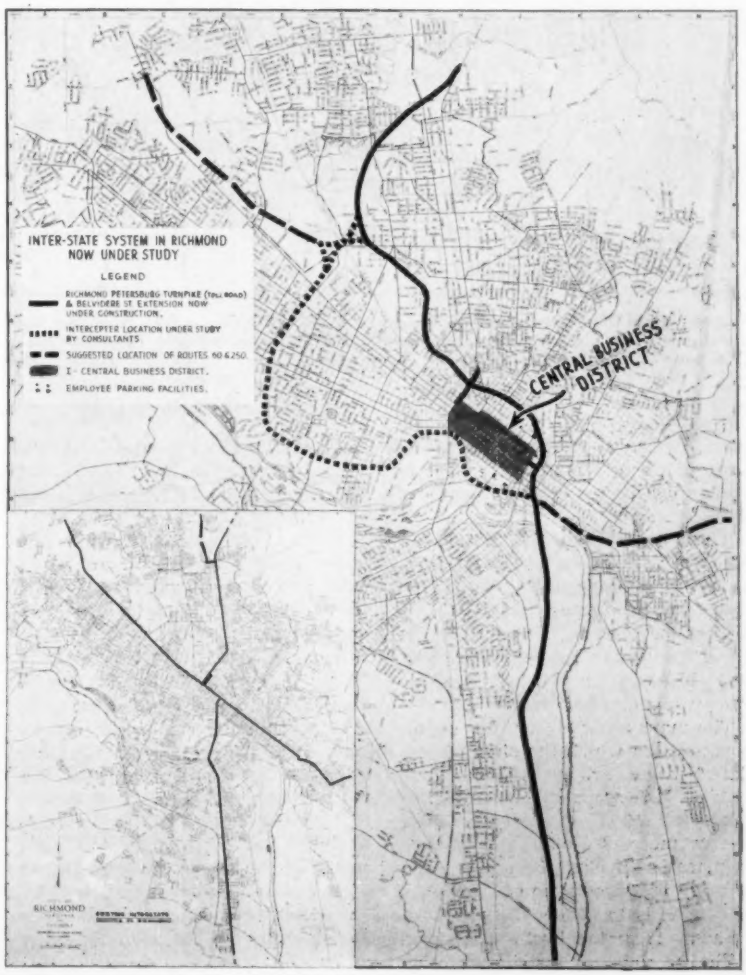
—ROBERT D. DIER
City Traffic Engineer
Long Beach, Calif.

WHEN the new, the widened, and the rehabilitated highways, superhighways, and freeways begin to crystalize the pattern of the national system of interstate highways, how will they serve the cities and the towns? Are the municipalities already taking the initiative by determining the type and location of the connections between highways and their street systems?

The cities had some warning that the highways were coming. A year ago, the U. S. Bureau of Public Roads issued a 100-page booklet entitled "General Location of National System of Interstate Highways." Did the 125 cities mapped with the new roads to pass through or close to them take measures to protect their business districts from inpouring through traffic?

THE AMERICAN CITY asked the traffic authorities not only of these 125 cities but also of 125 other cities not included in the Bureau of Public Roads booklet. The request was for a map showing the business district, any circumferential road systems around it, and the locations of long-time off-street parking.

Letters and maps have come from the city traffic engineers, planning directors, street and public works

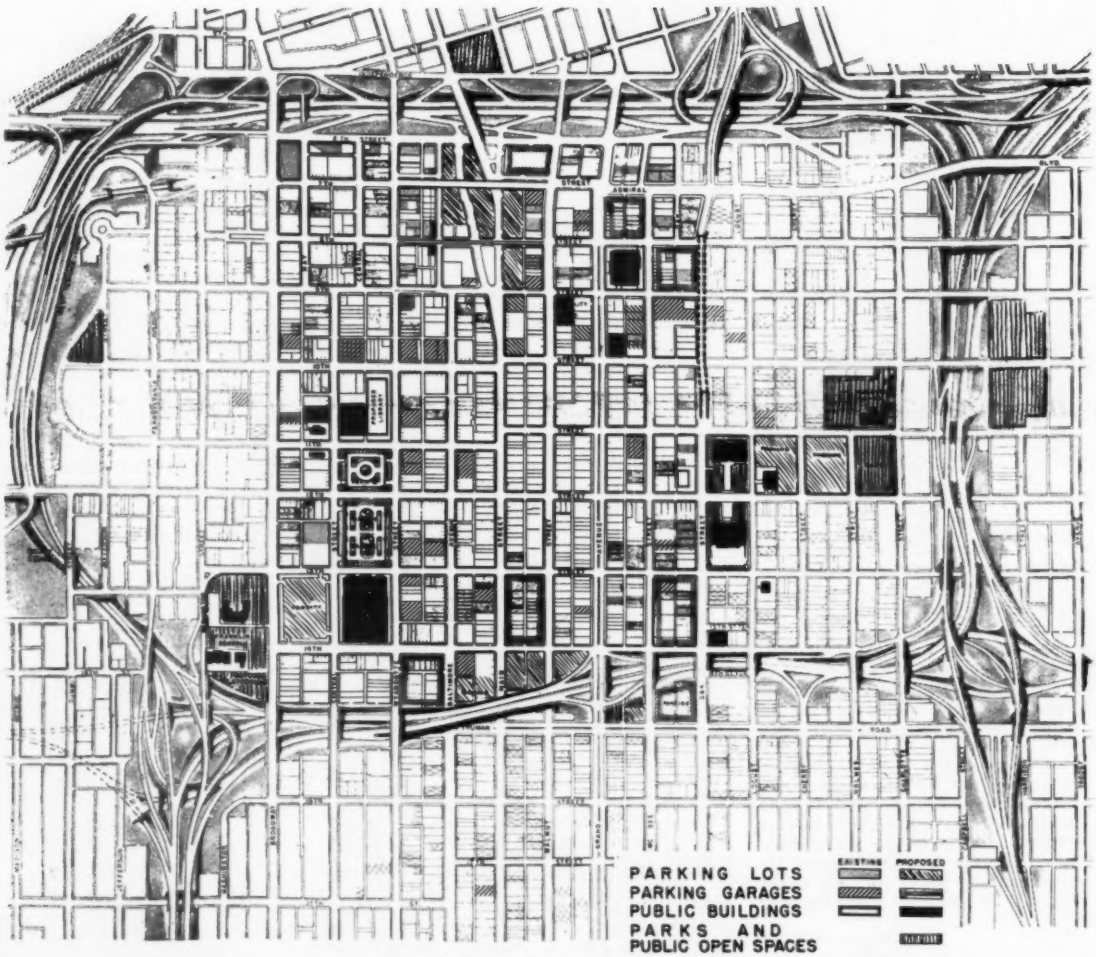

INTER-STATE SYSTEM IN RICHMOND NOW UNDER STUDY
LEGEND
RICHMOND PETERSBURG TURNPIKE (TOLL ROAD) & BELVIDERE ST. EXTENSION NOW UNDER CONSTRUCTION.
INTERCEPTER LOCATION UNDER STUDY BY CONSULTANTS
SUGGESTED LOCATION OF ROUTES 60 & 250
C - CENTRAL BUSINESS DISTRICT.
EMPLOYEE PARKING FACILITIES.
CENTRAL BUSINESS DISTRICT
RICHMOND

Right.
Map indicates how Richmond, Va., highways will connect with the national plan. Map insert at lower left shows existing interstate routes in Richmond. The maps were provided by R. C. Brauer, assistant city planner.

—JOHN T. HANNA
Assistant Director
Department of Public Safety
Richmond, Va.

Left.
Map of Great Falls, Mont. (population 39,000), shows the business district with ten municipal parking lots and the probable location of the interstate highway through the west end of the city. Also shown are the truck route and the primary highways.

—HARVEY READ
Traffic Engineer
City of Great Falls, Mont.



Master plan of the Central Business District of Kansas City, Mo., which shows the location of the ring route of expressways around the district. For further information read "Kansas City's Downtown Story," which appeared on pages 123 and 124 of the April 1956 issue of THE AMERICAN CITY. —J. A. HUTTER, *Director, Traffic Department, Kansas City, Mo.*

officials of over 50 cities. Here are some of them; others will appear in succeeding issues of THE AMERICAN CITY.

These arteries in and around urban areas are likely to cost as much as $16 billion according to THE AMERICAN CITY for August, page 195. It is not surprising, then, that the usual connection between the interstate highway and the city's street system is a straight line.

The maps show clearly the important position which the circumferential freeway around the business district has assumed in municipal thinking. Most of the maps show one or more of these ring systems in place or in planning stage. The primary purpose of the belt freeway, of course, is to deflect through traffic away from the business district.

The second step in this solution to congestion is to remove long-time parking from the business district and locate it in dual parking areas on either side of the freeway.

This is a step, of course, that enters the delicate fields of public relations, ordinances, politics. Only a few cities, if any, thus far have prohibited long-time parking in the business district and provided for it in the manner prescribed. This can be done with little criticism when parking areas can be found along an inner belt located close in to the business district. An example of this is given here by the City of Peoria, Ill. At the larger cities the ring is likely to be far enough from the center of the city to require transit service to the parking areas.

Basically, the Interstate Highway System presents the need for cities to do the following specific tasks:

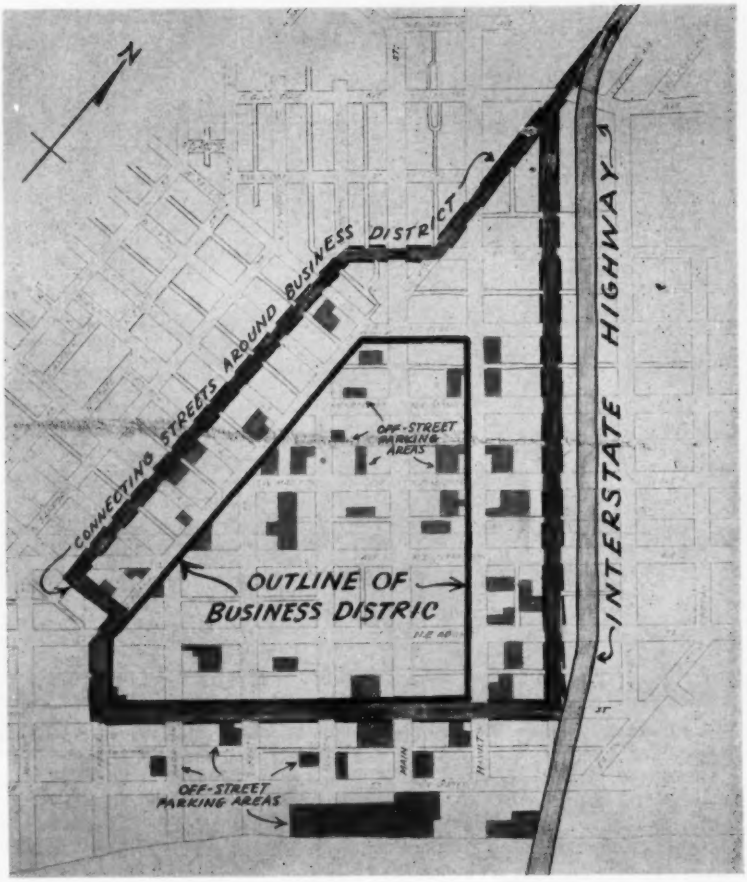
- **Provide the facility for bringing traffic from the highway to the ring freeway around the city's business district;**
- **Provide off-street parking along the ring if possible and, in any event, outside the business district for long-time parkers;**
- **Provide means for expanding these correctly located long-time parking facilities as traffic and the downtown district grow. In the case of larger cities, where the ring is too far out for convenient walking, arrangements should be made for providing frequent public transit service to the long-time parking lots.**

A study of the plans that will be presented in this and succeeding issues will show the extent to which cities are now meeting these basic specifications. Only to that extent can their program be coordinated with the nation's over-all Interstate Highway Plan.

Right.

This map of Peoria, Ill., shows the relationship of the U. S. primary road program for interstate highways to the central business district of Peoria.

—DANIEL J. HANSON
City Traffic Engineer
Peoria, Ill.



Right, below.

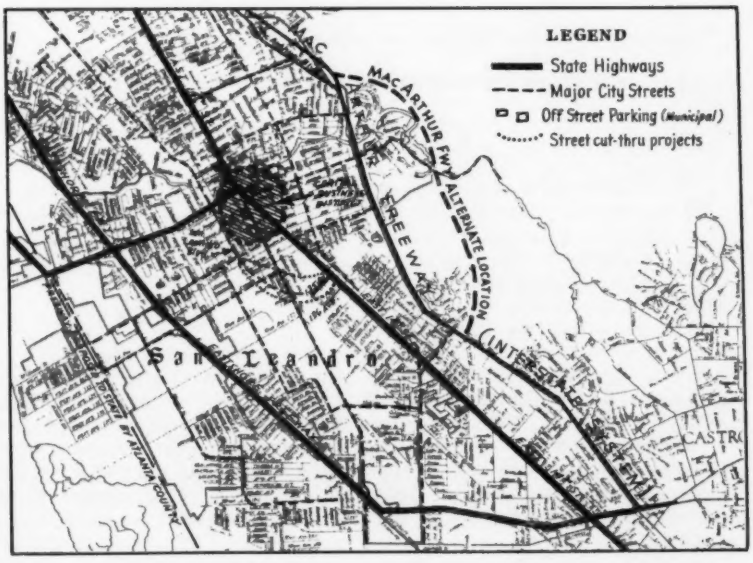
Map shows present thinking on a major street system in the City of San Leandro, Calif. A major street and highway plan was adopted by the City Council in 1951, but it is in need of revision due to the large increase in area and population which has occurred during the last five years. Two major improvements to bypass traffic have been under study. One is the making of two pairs of one-way streets to aid internal circulation in the Central Business District. The cut-through of two streets is required. The other improvement is the extension of San Leandro Boulevard to the south so it will connect with 135th and 136th Avenues and East 14th Street. The connection will aid in bypassing traffic around the Central Business District.

The existing Eastshore Freeway greatly relieved traffic on East 14th Street, which passes through the center of the Central Business District, when it was opened in 1952. Since that time, traffic on East 14th Street has built back up to its previous volume of 23,000 vehicles per day. It is felt that MacArthur Freeway (in the Federal system) will have a similar effect over a period of time. No date has been set for construction of the MacArthur Freeway, but the Federal bill should advance construction at least one year. It would appear that construction should start in approximately 3 to 5 years.

The major problem in San Leandro is lack of off-street parking, so that merchants will not object too strenuously to peak-hour parking prohibitions on the major downtown streets. A program of such parking is under way and should provide 400 municipal stalls in the central business district next year. This number, combined with private parking, should prove adequate.

In general, it might be said that the Federal system will aid San Leandro by taking a large part of through traffic off our streets. It will mean fewer accidents on our major streets. No additional burden due to this facility is foreseen at this time. Here in California we are lucky enough to have a system of freeways which, when completed, should greatly aid in reducing traffic hazards and congestion. The primary transportation lack is rapid transit, which is presently under consideration in the Bay Area.

—R. W. CROMMELIN
Traffic Engineer
San Leandro, Calif.



Topeka's new Gage Park pool is only the beginning of a long-range pool construction program for the municipality.

Topeka Gets Set for a Pool Expansion Program

Newest pool sets stage for plan for new neighborhood swimming facilities

By WILLIAM R. YERKES*
Commissioner of Parks and Public Property
Topeka, Kans.

SUMMERTIME is swimming time in Topeka. This is true not only for the youngsters who want to splash hot days away but for Topeka's officials who plan and operate its city pools.

However, the past summer has been a special one for the city's swim enthusiasts, for during the just-ended season, this municipality of 80,000 witnessed the opening of a spanking new swimming pool, chalked up a new record in swimming attendance, and laid the foundation for a long-range pool construction program.

Topeka's new Gage Park Swimming Pool, built for the city's largest park, was formally dedicated in June. Within eight weeks a total of 101,219 paid swimmers had used the pool and 1,712 children had received swimming instructions. The attendance record had exceeded the city's fondest expectations.

Financing

The new pool, offering 12,300 square feet in water surface was built at a contract price of $264,338 to replace an old swimming pool that had been in operation since 1920. Funds for the pool were provided by a capital improvement bond. Under Kansas statutes, Topeka's City Commission is authorized to issue bonds without a public vote.

The pool is part of a long-range park and recreation plan which the Recreation Commission and the City Commission developed for Topeka with the National Recreation Association. A major part of the plan calls for the eventual development of five more new neighborhood pools.

The old Gage Park pool, with a water surface area of 61,000 square feet and comprising nearly 1½ acres, was actually carved out of a mud-bottomed pond with improvements added on through the years. As time went on, the pool bottom, which had been covered with a layer of concrete, disintegrated. It also became evident that the gravity sand filter system did not provide ideal pool sanitation. Superchlorinating was required continuously in order to

* We have just received word from Mr. Yerkes that he has been appointed city manager of Atchison, Kans.

maintain a bacteria count, which would permit continued use of the pool.

In selecting a design for its new swimming pool Topeka officials placed primary emphasis on effective community service. Thus particular attention was given to the provision of spectator space as well as complete accommodations for the actual swimmers. The Topeka firm of Servis, Van Doren, Hazard, consulting engineers, was retained by the City Commission to design the pool and to supervise its construction.

Olympic Size Pool

To accommodate any official swimming meet that might come along a standard Olympic design was selected. Thus the Gage Park Pool is 50 meters (approximately 164 feet) by 76 meters wide. Ample space for sun-bathers and patrons not actually swimming is provided by 14,450 square feet of deck surface area which is 20 feet wide on the sides of the pool. This enlarges the pool's capacity by at least one-third.

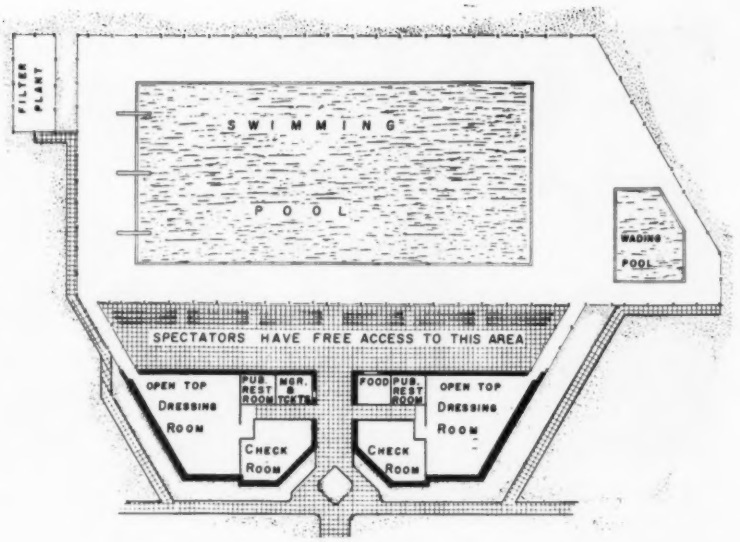
Bleacher seats are provided for about 350 spectators. Entrance to the bathhouse flanks each end of the spectator area which is available to the public without interfering with dressing room traffic.

The pool has a white painted interior equipped with 28 underwater lights, which, when combined with general area lights of mercury vapor and incandescent makes night swimming interesting to both swimmers and spectators. Night water shows and exhibitions are also made possible.

Filter System

Topeka's new Gage Park pool uses a Sparkler diatomite filter system. We believe that this type of filter helps to secure the best water quality possible and to reduce turbidity to a minimum level. The supplier furnished a performance bond for the first year's operation.

The filter system is designed for a six-hour turn-over and is guaranteed for a 72-hour run before backwashing and recoating is required. One early run of the filter, under average pool conditions extended for more than 150 hours. Shorter runs are necessary under heavy load conditions. Water quality has been spectacular as it has remained crystal clear with a sterile blue appearance. And as Topeka City officials will tell you with pride: it is possible to tell whether a quarter on the bottom under more than ten feet of water is heads or tails.



The pool design pays special attention to spectator space.

The pool uses a single chlorinator, which is a Wallace & Tiernan type A-626 (MSV) semiautomatic. This chlorinator, equipped with a capacity of 150 pounds of chlorine per 24-hour period, has proved entirely adequate to maintain a satisfactory level of chlorine residual in the pool.

Planning for the new pool was begun in 1953 when the Recreation Commission was established by a public vote and became responsible for operation of all the city's swimming pools. At that time the old Gage pool had become increasingly inadequate for Topeka's swimming needs and many Topeka citizens were doing their swimming in surrounding communities. Six neighborhood swimming - wading pools were in about the same physical condition. However, yearly attendance at the public pools continued to gain.

Long-Range Program

It did not take long for the Recreation Commission to decide that Topeka badly needed swimming and other recreation facilities. Together with the City Commission, the Recreation Commission engaged the National Recreation Association to prepare a report on Topeka's recreational needs. The result was a long-range recreation construction program for Topeka and the construction of the Gage Park pool.

Many individuals and organizations took part in preliminary discussions of swimming needs. Much helpful information was collected and community interest was focused on Topeka's lack of swimming accommodations. In addition, the Advisory Park Board, which is charged with the responsibility of planning for park and recreational facilities, gave general supervision and made specific recommendations for the development of the long-range program.

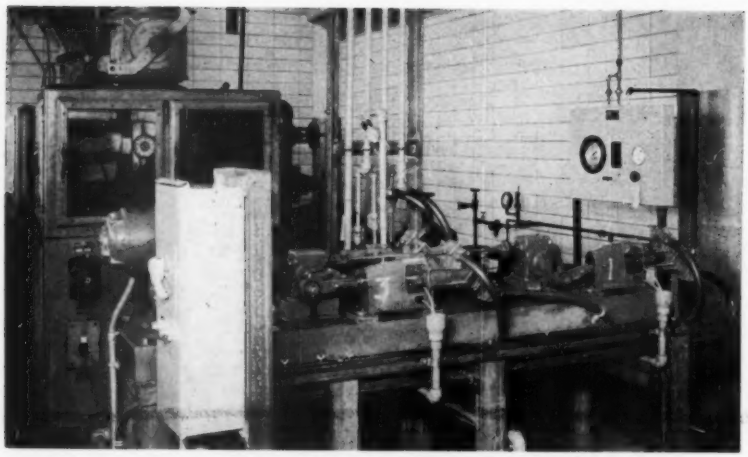
Old Pool Retired

The old Gage swimming pool was retired from active service on Labor Day 1955. Several suggestions have been made for the use of the old pool, including a zoological exhibit which would make use of its sunken area. But nothing has been decided on.

Construction plans for the new pool twice suffered temporary setbacks when the lowest bid offered went over the engineer's estimate by about 10 per cent. Finally the plans were revised and an Oklahoma City company together with an electrical firm submitted a satisfactory bid which came within the engineer's estimate. The total contract price was $264,338.

Although it is too early to have any accurate figures as to operating and maintenance costs for the new pool we have full confidence that the revenue from the new swimming pool will more than pay for itself. Topeka's Superintendent of Recreation R. Foster Blaisdell estimates

(Continued on page 192)



A 3-cylinder, calibrated, Milton Roy displacement pump feeds acid to the water.

Fluoridation System

(Continued from page 135)

so far by rail, in 8,000-gallon rubber-lined tank cars. Trucks have brought a small amount. To unload the acid from the tank cars a rubber discharge hose connects to the 2-inch Uscolite receiving pipes in the storage tanks. A compressed air line also is connected to the tank of the car with the pressure gauge set at 5 pounds maximum, or enough to start the acid siphoning. Although no pressure is then required, for safety we maintain two or three pounds of tank pressure throughout the unloading. The tank car can be unloaded in about three hours.

The fluoride naturally in Lake Michigan water is about 0.05 ppm. The pumps add enough to increase the amount to the recommended dosage of 1.0 ppm. This requires 7.90 pounds of fluorine, or 43.4 pounds of the 23% acid.

Hydrofluosilicic acid (23%) is nonfuming, except that the air above a partly filled tank will contain a small amount of acid vapor and will have a sour smell. To protect personnel, we adhere to these safety rules:

- Handling and storage areas must be posted with danger signs.
- Liquid on the floor must be presumed to be hydrofluosilicic acid until chemical tests prove otherwise. Liquid of any kind on the floor must be removed as soon as possible.
- Employees making valve changes must wear rubber gauntlets. If liquid is on the floor, they must wear rubber boots.
- If acid leakage occurs, and the leak is confined to a curbed area, water must be turned into the area to dilute it. Leaks at the storage area that drain into the catch-basin should be stopped as soon as possible, so that acid caught in the catch-basin can be pumped to a storage tank, or drained to the area underneath the plant if storage is not available. The catch-basin then should be thoroughly washed.
- When acid fumes are noticed, employees must not enter the room without a gas mask in addition to other protective equipment. Rooms suspected of acid fumes should be thoroughly ventilated.
- Ammonia from an aspirator will confirm the presence of acid fumes. The ammonia will turn to a light grey cloud. Acid spilled on the floor may be detected with blue litmus paper.
- When leakage has occurred, the floors and any equipment coming in contact with the acid must be washed thoroughly.
- Any protective equipment or clothing that may become contaminated with acid must be washed after using.
- If the acid comes in contact with the skin, immediately wash or use the drenching shower. Soap should be used as the washing proceeds.
- Men performing any work on the acid pumps or piping where a possibility exists that they may come in contact with the acid, must be fully protected with rubber raincoats, rubber gauntlet-type gloves, rubber boots, and acid goggles or hoods.

Fluoride Feeding

The Milton Roy controlled volume pump system is actually three direct-displacement pumps, powered by one electric motor through variable-speed transmission. One pump serves for each basin. The speed reducer has dial setting from 0 to 9. To aid in determining whether the acid is being fed, the pump system is equipped with a stroke counter. A tank elevation reading is also made at midnight each day and is used to determine the exact amount of acid fed during the 24 hours.

Laboratory personnel make tests at two places in the filtration plant. One is at the outlet of the mixing basins and the other on the water before it leaves the plant to go to the city. Since the plant has three mixing basins, a sample from each basin is required. Also, a sample is collected from each of the two filtered water reservoirs. Samples are collected three times daily.

Samples also are collected daily from at least three representative locations over the distribution system. We expect to settle on 18 to 20 tests daily.

The total cost of the installation will be approximately $70,000. A small amount of work yet remains to be completed, most of it to insure added safety.

The estimated annual cost of operation, based on the present material and labor cost, will probably run as follows:

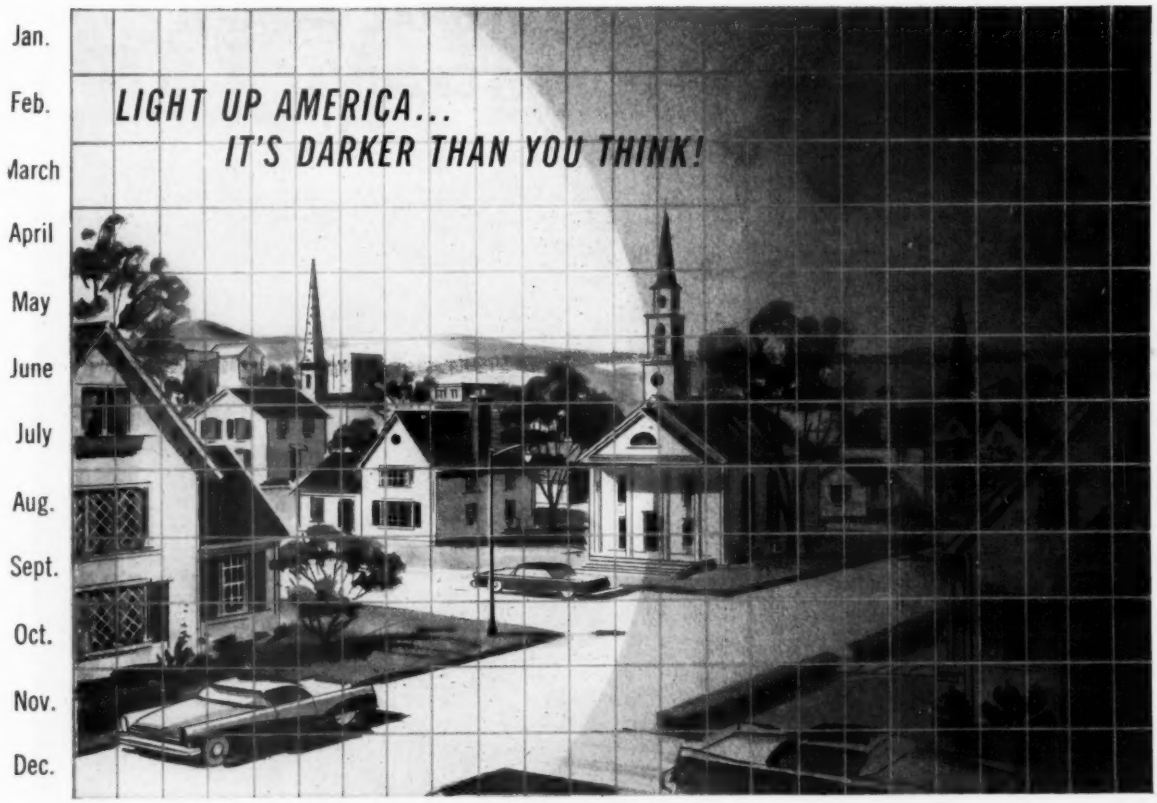
Hydrofluosilicic acid	$170,820
Chemists	11,892
Operating engineers	17,136
Repairs	20,000
Total	$219,848
Cost per million gallons	$1.69

Two extra chemists were added to the laboratory force, and operating engineers not needed for other chemical handling duties were assigned to fluoridation.

Urges Heliports for Colorado Cities

COLORADO CITIES have been asked by their governor to plan for heliports in their communities because "the time is coming when every city will need such a facility."

In a recent letter to the mayors of larger cities in the state and to the Colorado Municipal League, Governor Edwin Johnson, a helicopter fan himself, pointed out that heliports would be useful in providing rapid, short-haul air transportation to the communities of Colorado, and in emergencies. Accordingly, Colorado cities were urged to set aside a centrally located area for a heliport site. "It is not too early for our cities and towns to make such plans," the governor said. Spearheading this movement for municipal heliports is Dick Martin, assistant director of the Stapleton airfield in Denver.



How does your town plan to combat darkness?

In five out of six communities, shopping and residential streets which are pleasant and inviting in the daytime become dark and unattractive when night falls. "Horse and buggy" lighting cuts down the hours of business, reduces social activity, keeps away visitors, and sets the stage for juvenile delinquency, crime, and accidents.

That's why hundreds of civic leaders across the nation are sponsoring good lighting in their towns. Adequate street lighting has already proved that its benefits far outweigh its moderate cost. Brightly lighted shopping streets act as a magnet, pulling buyers from miles around. Community life is quickened when streets are safe for pedestrians and drivers. Crime is reduced. Nighttime accidents are fewer.

People know that the well-lighted town is a progressive town—a good place to live and to establish business and industry. Why not find out how much good lighting can do for your community?

"Out of Darkness," a new, dramatic film story of how one community met its street-lighting problems, is now available to civic groups, community service organizations, etc. This 16-mm, sound, black-and-white movie runs 26 minutes. Borrow a print of "Out of Darkness" from your nearest G-E Apparatus Sales Office.

Section A455-12
Outdoor Lighting Department,
General Electric Company, Schenectady 5, N. Y.

Please send me a free copy of the 24-page bulletin, "Light the Way to a Better Community," GEA-6047.

Name_____

Street_____

City and State_____

Progress Is Our Most Important Product

GENERAL ELECTRIC

A "FIRST HONOR" ARCHITECTURAL AWARD TO THE ST. LOUIS AIRPORT TERMINAL BUILDING

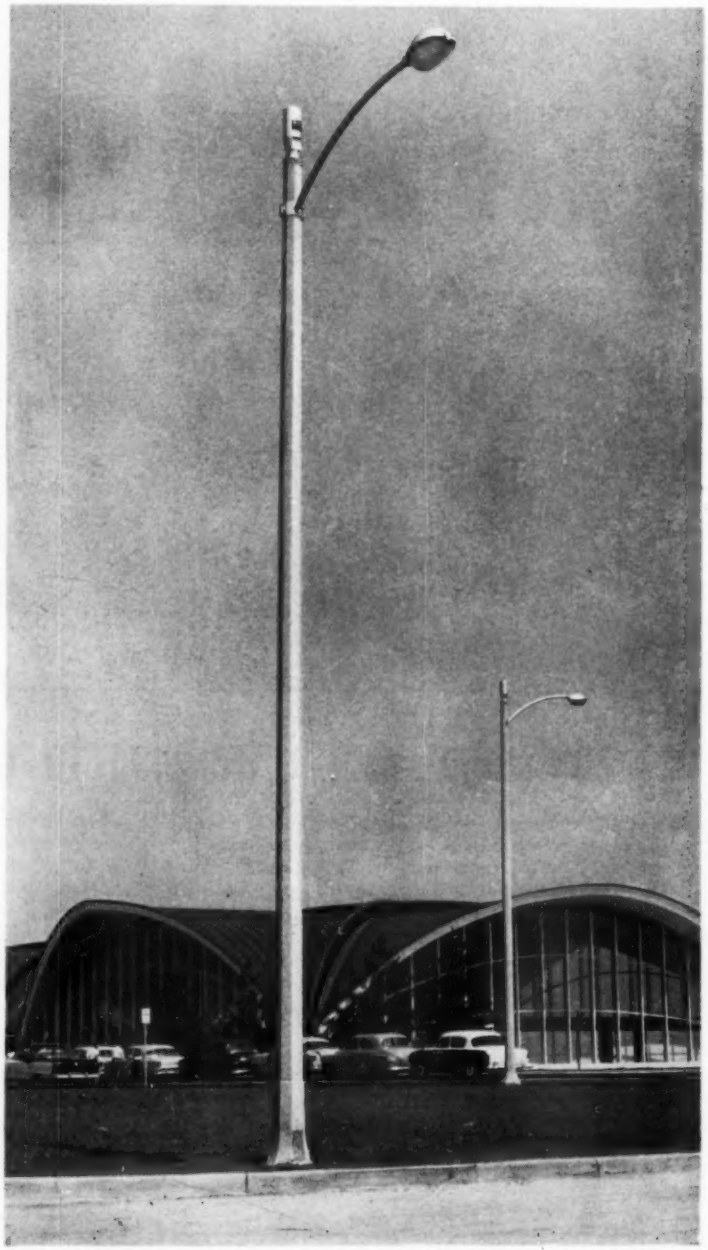
. . . and congratulations from American Concrete to all those who helped make this award possible, including:

ENGINEERS
W. C. E. Becker & Ferris & Hamig

ARCHITECTS
Helmuth, Yamaski & Leinweber

The American Institute of Architects recently selected the St. Louis Municipal Airport Building "First Honor Award Winner" . . . most outstanding building of the year.

Lighting of the airport grounds is provided by American Concrete prestressed Hy-Lite lighting standards, mounting mercury vapor luminaires.



The attractive granite finish of these Hy-Lite Standards blends perfectly with the modern design concept of the St. Louis Air Terminal.

American Concrete 5092 N. Kimberly Avenue, Chicago 30, Illinois

PRESTRESSED CONCRETE LIGHTING STANDARDS

Municipal Public Relations

The City Tells Its Story

Edited by PAN DODD WHEELER
Executive Director, Government Public Relations Association

Fire Prevention Week Builds Better City-Public Relations

THE effectiveness of Fire Prevention Week (October 7-13 this year) is measured by how well fire-prevention activity and public interest in it is sustained the other 358 days of the year.

Robert W. Schuette, public relations manager for the National Fire Protection Association, says that the purpose of Fire Prevention Week is "to motivate the public to constructive action against fire." And this means to dramatize, personalize, help the individual realize his responsibility in fire prevention.

To encourage fire-department use of the week to stimulate year-round action, NFPA sponsors a "Fire Prevention Week Contest." Last year, 963 towns and cities entered it. This year, there'll be even more, NFPA believes.

While the fire department in most municipalities has the function of carrying out the fire prevention program, the entire official city family has responsibilities in the public relations aspect of it. Past experience indicates that in the cities where fire loss is lowest and attention to fire safety highest, it is a combination of fire department, city officials, the business community, schools, citizen groups, and public information media that has effected the community-wide benefit.

Local fire departments have professionally prepared public relations tools available through NFPA and the services of The Advertising Council for nationwide, year-round fire prevention promotion. "Sparky"—the Dalmatian dog symbol of fire prevention—is an Advertising Council innovation. Sparky rallies people to recognize fire hazards, clean and inspect their own properties, correct hazardous conditions, listen to fire-prevention information, and support moves to make city fire-fighting forces adequate.

Since his introduction to the fire prevention scene in June 1952, Sparky has enrolled thousands of youngsters in his "Sparky Fire Department." Comic books, home inspection blanks, and coloring books are among the PR tools dreamed up by The Advertising Council and built around the Sparky symbol. Sparky's year-round campaign utilizes radio and television (with heavy concentration in October and November), newspaper mats (cartoons and drawings), outdoor signs, and car cards.

While the Advertising Council's know-how and work at the national level helps pave the way for local fire prevention programming, some of the most original promotion is conceived and carried out by town and city fire departments in their own communities. The following are exemplary:

Ride the Wagon is an annual event at Lookout Mountain, Tenn. (See photo), when the fire department lets the youngsters pile into the fire truck, provides them with a ride around the mountain-top community and later gives them a talk on fire hazards. Back at the station, the youngsters and their waiting parents get a look at fire-fighting equipment, are told of its uses, and warned about the need for periodic home inspections.

Clown Toby "TOFF" symbolizes the Rice Lake (Minn.) Township Organized Fire Fighters in promotions which launched the volunteer fire service and have kept it going for the past eight years. Toby is a feature in parades and at Rice Lake's annual TOFF "Funfest," which packs the school auditorium for a variety show. "Funfest" receipts help pay for fire-fighting equipment.

Hadafire Family was featured in daily skits during fire prevention activities in Providence, R. I. Each fire hazard or failure which caused a fire. This type of skit is adaptable not only for presentation to groups but also via television.

Operation Octopus is Memphis, Tenn.'s prize-winning (first place, 1955 Fire Prevention Week Contest, Class II), saturation effort. Its aim: year-round, to put fire prevention information into every home, business, and public gathering place, and to have a periodic inspection for fire hazards in each.

Home inspections were plugged in Fort Washington, Pa., and Storm Lake, Iowa, where local newspapers carried a series of articles and advertisements on the need of inspection for hazards. The features included a fill-in blank which could be torn from the paper, completed, and mailed to the local fire department by persons who wanted homes or businesses inspected.

Family fire prevention was featured by the Fire Prevention Bureau in Hammond, Ind., where the local newspaper published an invitation for persons to ask the fire department for instruction in home fire drills. Winnetka, Ill., also aimed at family fire prevention when it distributed ribboned badges suggesting, "Why not have a family fire safety conference tonight?"

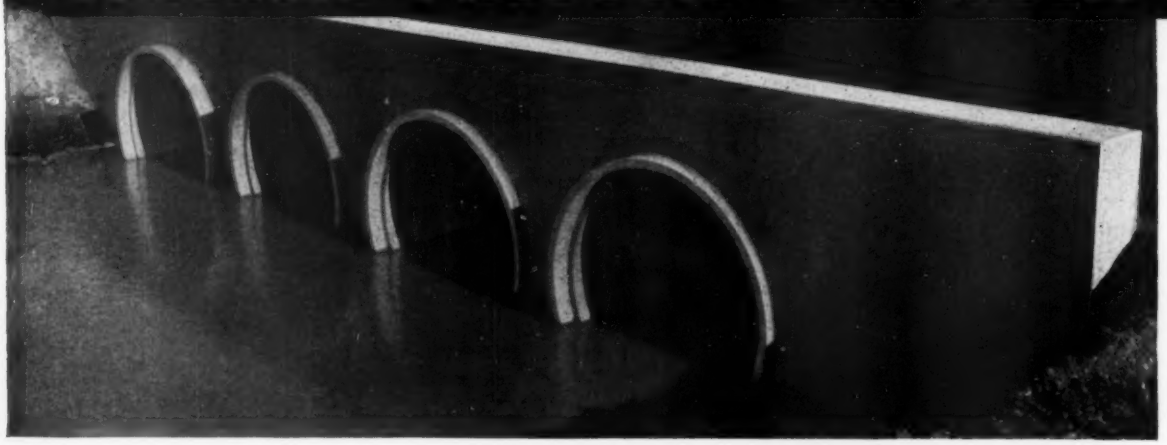
Sparky has been used by many cities in fire safety-education. In Portland, Maine, firemen have made a Sparky puppet which is used in classroom work and for all school programs. And Wausau, Wis., a third-place winner last year in its class, featured a fireman dressed up as "Sparky" and the theme, "The People of Wausau Don't and Won't Give Fire a Place to Start."

Parades are a common and effective fire-prevention activity. Miami, Fla., gave an old-type parade a twist by staging a marine parade of boats, bathing beauties, city officials, and marine fire-fighting equipment.

Life of a Fireman was sampled by Boy Scouts in Anderson, Ind., who spent all day at the fire department to "live a day in the life of a com-

(Continued on page 148)

STRATEGICALLY LOCATED AMERICAN-CONCRETE PRODUCTS FOR MULTI-



ROUND PIPE

As the nation's largest maker of concrete culvert and drainage pipe, American-Marietta offers contractors round pipe of known permanence and performance. A full range of sizes is available, with pre-tested strengths to meet various specifications. For extreme loads see Hi-Hed Pipe, below.

HI-HED PIPE

Elliptical Hi-Hed Reinforced Concrete Pipe permits greater self-cleansing velocities in dry weather periods. Also perfect for drainage structures under unlimited fills because Hi-Hed has 50% greater strength than its round pipe equivalent.

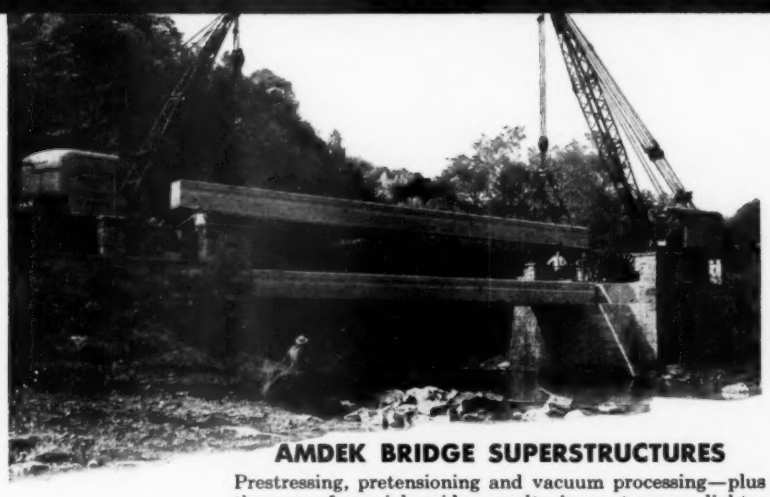
FLAT BASE PIPE

Save as much as 30% in the construction of pedestrian underpasses, culverts and cattle passes with pre-cast Flat-Base Pipe. Can be jacked under highways without disturbing traffic.

CONCRETE CRIBBING

Used as a retaining wall, both open-faced and closed-face "King-Size" Cribbing offer flexible construction unaffected by movements that crack monolithic walls.

MARIETTA PLANTS READY TO SUPPLY BILLION DOLLAR HIGHWAY PROGRAM



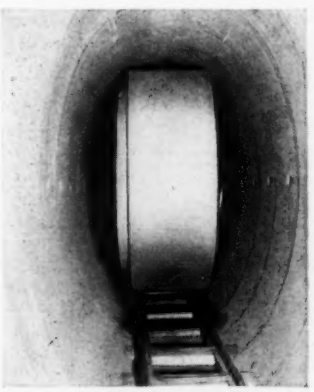
AMDEK BRIDGE SUPERSTRUCTURES

Prestressing, pretensioning and vacuum processing—plus the use of special voids—results in a stronger, lighter bridge member that can be handled like steel beams in any weather. Pre-cast Amdek sections, above, were positioned in just six hours. Amdek eliminates painting and maintenance.

A giant in the construction materials industry, American-Marietta offers a related group of essential concrete products for use in building and rebuilding the nation's highways. American-Marietta has expanded its plants to supply the increased demand and to prepare for still more volume. Manufacturing facilities are strategically located throughout the United States to assure distribution near points of use. Send for complete information about any of the products illustrated on these pages.

LO-HED PIPE

Elliptical Lo-Hed Pipe carries a greater flow than its round equivalent—in a minimum depth of cut with increased depth of cover. Easier to lay, to grade and line. Pre-tested strengths to answer any low headroom problem.



INNER CIRCLES

Tunneliner Process allows passing of pipe through pipe underground without requiring excavations or disruption of surface traffic. Work progresses regardless of weather conditions.

Our technical staff will be pleased to assist you with your problems.

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American-Marietta Company of Pennsylvania

City Tells Its Story

(Continued from page 145)

munity fire fighter." Full newspaper coverage was given the day.

Volunteers received attention from Martinsville, Va. (1955 second-place winner in the NFPA contest in its population class). The Martinsville department loaned both men and money to volunteer fire fighting units in the area to enable these to conduct fire prevention activities. The result was an effective area-wide fire safety campaign and new public support for nonsalaried volunteers.

Window Stickers, fluorescent red stickers to be placed on windows of bedrooms where children sleep, were developed by Flint, Mich. The sticker would make rescue of children quicker in time of fire. It is more important, however, as a constant reminder to parents to keep the house free of hazards.

Fire Prevention Week and the year-round public reaction it stimulates can create better public relations not only for the fire department but for the total city organization.

Children, Sparky, and fire-safety are "go-togethers," as this photo indicates. Lookout Mountain, Tenn., has found its ride in the fire engine for children a good-will builder for the department.

Professional Know-How Produces Handsome Citizen Reports

SKILL in the use of color, type, illustrations, and design in recent municipal reports has resulted in new and original publications for citizens. Aimed at snatching citizen attention from books, magazines, TV, and slick advertising matter for a few minutes, these booklets and films are likely to do just that.

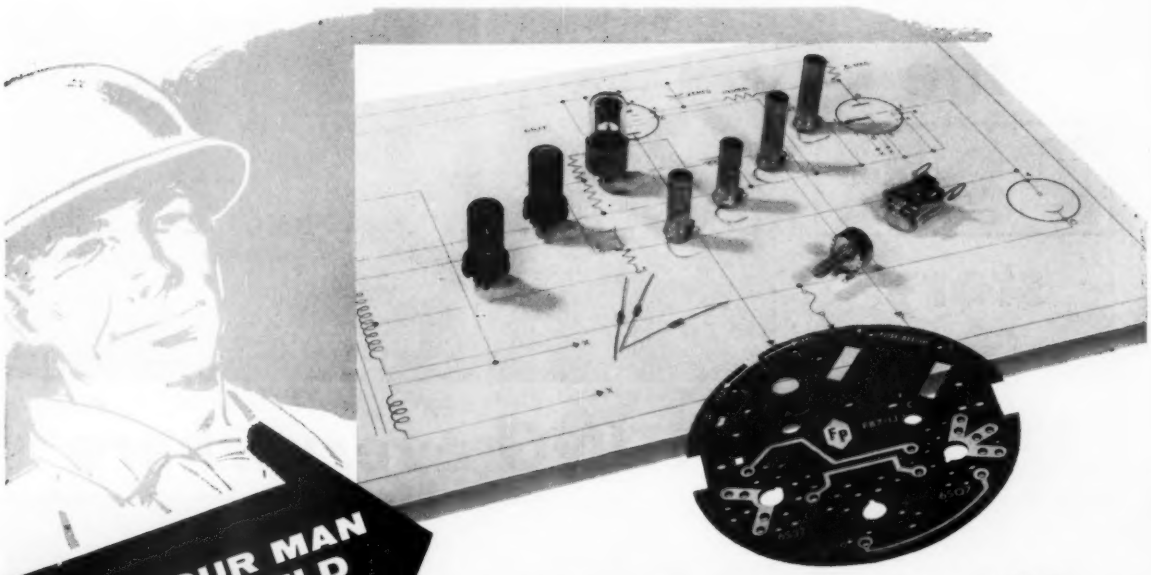
The Hollywood Story is the black, red, and white report of how the city of Hollywood, Fla., performs more than 200 services every day for citizens yet takes but 38 cents of his tax dollar in payment. Informal layout combines hand-lettering, exceptionally clever pen-and-ink drawings, and genuine humor—with no lack of dignity—in titling. For example: a report on garbage collection is "Take it away!"—the section on the city sewerage system is "Our very, very sanitary sewers." On finances, it's "Just the facts, m'am."

Biggest Lender in the West isn't the story of a bank . . . but of how the Los Angeles Public Library lends 9,000,000 items a year. Color combination of mustard, black, and white; the big, bold layout (the booklet is 8½ inches by 11 inches); and excellent line drawings are features. The report to citizens tells the what, why, and how of 1955-56 and concludes with a final page, ". . . but important needs are coming up . . ." and tells citizens what they are.

San Mateo, Your City is a 28-minute sound and color film depicting city activity. Photography and script coordination was done by a local professional who volunteered his services to make the picture. City Manager Arthur B. Sullivan and former assistant, William F. Cornett, handled the script. Narration is done by a local TV announcer who volunteered his services. The city provided "expendable materials" for the production which, according to Assistant Donald E. Mueller, cost just $1,100. Mr. Mueller says that the film is suitable for showing to groups, its message is more dramatic and obtains a longer span of attention than a printed report, it appeals to all ages, including children.

Partners in Progress exactly describes the contents of a stunning, black-white-and-rust-colored employee handbook which rolled off the presses in Beverly Hills, Calif., at deadline for these MPR pages. The handbook is 5½ inches by 8½ inches in size, covers the history of the city, the city government organization and functions, and complete employment data. This latter is grouped under chapters "What Beverly Hills Offers You," "What Beverly Hills Expects of You," and "For Your Information." Effective use of color and line sketches enhance the good looks of this publication. The booklet opens with a letter from Administrative Officer John B. Wentz.

How to tell your story in slides—the Little Rock, Ark., formula—is the third in a series of public relations aids for housing and redevelopment authorities published by the national association (NAHRO), 1313 East 60th Street, Chicago, Ill. The booklet tells how Little Rock has used a story told via slides to report to the people on slum clearance. Little Rock purchased a 35mm camera with flash attachment, a projector, slide changer, radiant screen, and other equipment for less than $200. Its outline for development of the slide story is adaptable for other cities and for other subject matter. (Other NAHRO public relations booklets include "Films Helpful to Housing and Redevelopment Agencies" and "Public Relations and Urban Renewal." These are available from NAHRO at $1 each.)



ASK YOUR MAN IN THE FIELD ABOUT THE

component quality

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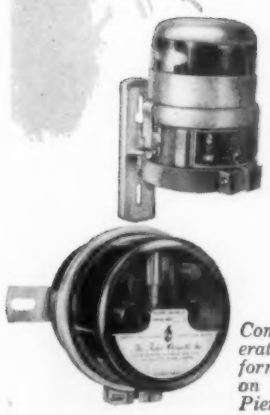
PHOTOELECTRIC LIGHTING CONTROLS

A look inside any Fisher-Pierce photoelectric lighting control immediately reveals a primary reason why they require extremely low maintenance and provide long-run economy: *component quality.* Here are specific examples: two *pre-aged* amplifier tubes, instead of one dual triode, for a guaranteed minimum life of 20,000 hours; *wire wound* potentiometer; *Sigma* sensitive relay for low plate current drain of power tube; *linen-based bakelite* sub-mounting chassis and etched circuitry; *metal encased* paper capacitors (no electrolytics); blue-sensitive 1P39 phototube with non-hygroscopic base. No other photoelectric control provides such consistently high component quality. Combined with this are these four other important features:



DESIGN ADVANTAGES — Can be installed, serviced or removed safely and easily • Wide mounting versatility and orientation after bracket installation.

PROTECTION — From surges and lightning, by linen-based bakelite sub-mounting chassis and proper component spacing Circuit and load fuses, and lightning arrestor • Fail-safe operation.

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Complete specifications and operating data are contained in informative F-P Bulletins, available on request. Or call the Fisher-Pierce sales representative in your area, for point-by-point proof of F-P superiority.

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AT LOWER COST to everybody

Pfaff & Kendall, originator of the Seamless Tapered Aluminum Lighting Standard and Tapered Elliptical Arm, is now producing designs and types to meet any highway, road, area, bridge and traffic signal requirement.

Wherever P & K All-Aluminum Standards and Brackets are specified and installed, the story is the same: *Fewer technical problems . . . rapid, easy installation . . . greater lighting efficiency . . . and the kind of economy you can figure in actual dollars!*

P & K All-Aluminum Standards and Brackets are always the wisest choice . . .

LIGHT WEIGHT for lowest cost installation.
NEGLIGIBLE CORROSION for longest service.
NO PAINTING means large, year-after-year savings.
SALVAGEABLE, RE-USABLE in event of knockdown.

WRITE FOR LATEST P & K CATALOG... and use the P & K planning and advisory services without obligation.

Pfaff & Kendall
84 Foundry Street
Newark 5, New Jersey

This is the latest of the many street lighting installations in Cleveland that have used an annual average of 550 Union Metal poles for 40 years.

A dramatic view of Cleveland's Memorial Shoreway.

Cleveland's Memorial Shoreway

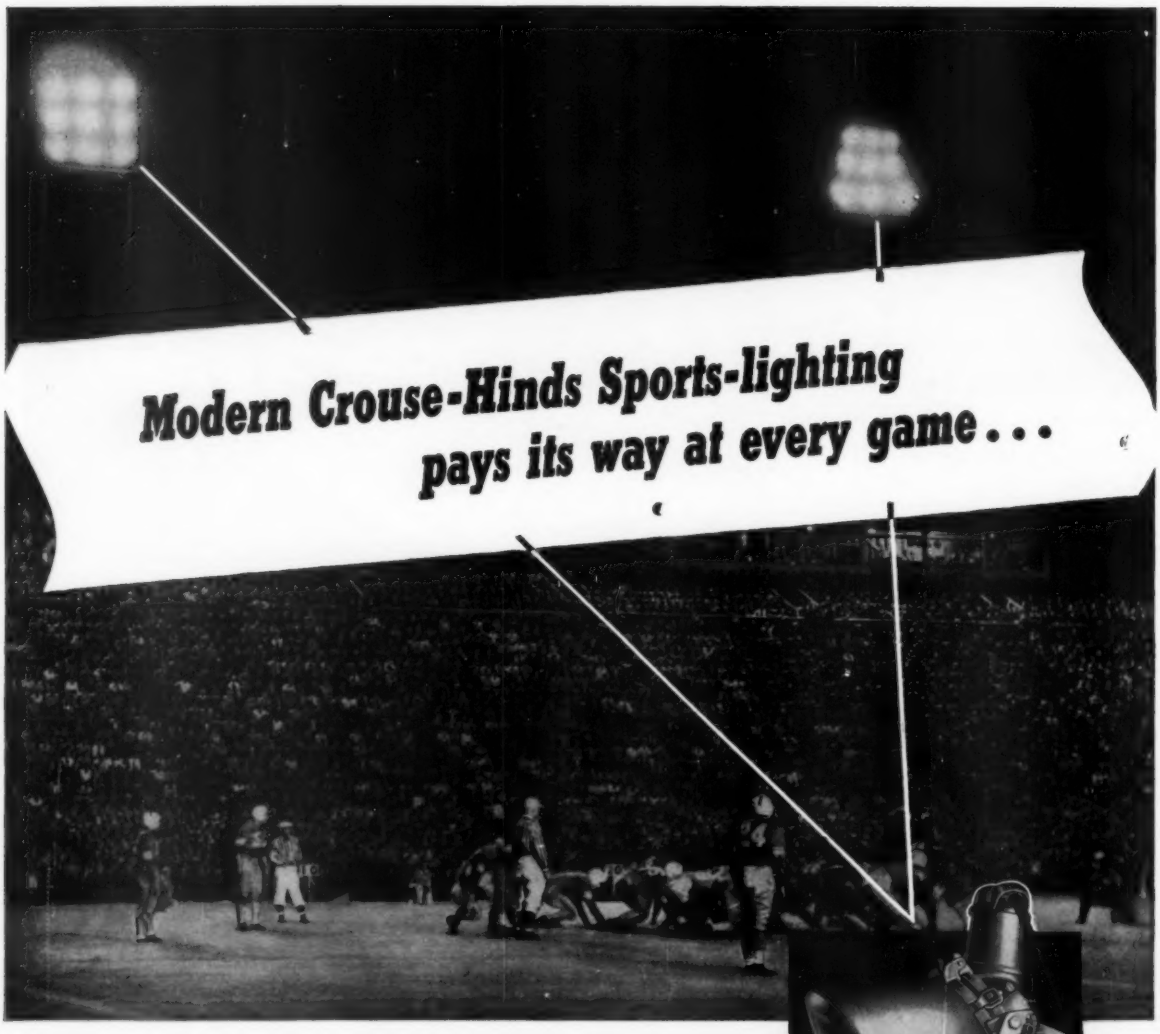
THE first Union Metal street-lighting poles purchased by the City of Cleveland, Ohio were installed on the public square in 1917. They were short, upright standards topped with bronze lanterns. Over the years more than 22,000 Union Metal poles have been installed.

The most recent are on the lakefront Memorial Drive, which speeds east-west traffic around downtown Cleveland for a distance of nearly 11 miles.

This freeway has cut driving time to and from the city 50%. The drive from West Boulevard to E. 86th Street is now lighted by nearly 1,500 Holophane Refractor-type incandescent luminaires mounted 27 feet above the pavement on tapered, plain round Monotube poles.

Eventually, this shoreway system will connect with the Willow Freeway, permitting through traffic on southbound Route 21. Upon completion of this and several other related urban freeday developments, Cleveland will have one of the most modern traffic

Incandescent lamps on Monotube poles bring near-day visibility to the Cleveland Shoreway near East 55th Street.



Modern Crouse-Hinds Sports-lighting pays its way at every game . . .

Type FLA Floodlight

Sports events lighted the modern Crouse-Hinds way arouse greater spectator interest . . .

. . . keep attendance and gate receipts at a high-profit level. All action on the field is easier to follow for players, coaches and spectators. Installations throughout the country prove conclusively that investments in Crouse-Hinds Sports-lighting provide an asset that can be written off the books in a single season.

Coaches are particularly happy about their Crouse-Hinds lighting system because it stretches the practice day—enables them to run extra sessions and keep teams trained to the fine fighting edge that assures a profitable following.

Administrators and city officials find Crouse-Hinds Sports-lighting permits full use of fields and stadia for school and civic functions as well as night sports of every type.

Your local electrical contractor is familiar with Crouse-Hinds Sports-lighting. Or our lighting engineers will gladly furnish free advice, tailored to your own requirements. Write today for the Crouse-Hinds Sports-lighting Bulletin containing standard layouts for every purpose.

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FLOODLIGHTS • CONDULETS • TRAFFIC SIGNALS • AIRPORT LIGHTING

flow facilities that exist in the entire United States.

When it is considered that approximately 65,000 vehicles use the Shoreway daily, the figure of 11 fatalities during the year 1955 is still considered "good" in the opinion of Police Lieutenant Clarence Triska, head of Cleveland's accident statistic division. And these accidents he blames primarily on excessive speed.

Progressiveness of Cleveland's lighting policies has been an important factor in keeping nighttime Shoreway accidents to a minimum. In fact, modern, efficient lighting makes the freeway virtually as safe to drive on at night as in the daytime.

Monotube poles along the Shoreway are spaced at 115-foot intervals in an opposite arrangement. Upsweep brackets, which support the luminaires, vary from 6 feet in length on the western section to 10 feet on the eastern, depending upon pole set-back from the roadway.

With one exception, 15,000-lumen lamps maintain a level of illumination on the pavement of about 1.8 foot-candles. This exception is at the interchange between E. 55th and 9th Streets, where 10,000 lumen units are employed. Along this section, pavement illumination averages 1.5 foot-candles.

In all—at interchanges, bridges and service roads—approximately 1,500 Union Metal steel Monotube poles are in use, about 30 of which support twin upsweep brackets. Originally, the Main Avenue Bridge, which divides the eastern and western section of the Shoreway, was lighted by sodium-vapor luminaires, but these have been changed to incandescent lamps, mounted at the uniform 27-foot height.

Alliance, Nebr., Highlights Culminate in New Lights

By R. W. LAING
City Manager

THE area of Alliance, Nebr., first city manager city in the state (1921), grew in 1955 with the incorporation of three additions totaling 40.3 acres.

These and other additions had shifted the voting load among the four wards out of proportion with each other. To correct this, an ordinance changing ward boundaries was adopted to provide more equal handling of the registration of voters. Nebraska statutes require reregistering of all voters in cities of more than 7,000 persons beginning January 1, 1956. Voters qualifying by registering following that date will not be required to register again until January 1, 1962, seven years later.

The power plant is the biggest material asset of our city, and in 1955 the first full year of plant operations on natural gas was completed with a fuel cost saving of more than $13,000.

A contract to purchase seasonal irrigation power from the Bureau of Reclamation during April to October was negotiated and a tie-in between the Bureau of Reclamation and the Alliance system accomplished. This 1,000 kw block of irrigation power was contracted at 4.5 mills for the first 250,000 kwh and 4 mills for all excess, with a demand charge during the seven-month period of $1.00/kw.

Power Plant Cooling

An industrial well for power plant cooling was developed during the year and equipped with a pump and motor to deliver 1,900 gpm with a 50-foot drawdown. It cools the turbines and the domestic system.

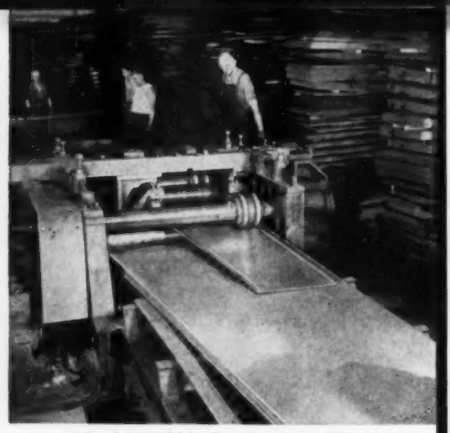
In the State of Nebraska there are 1,298 private

Fluorescent G-E luminaires mounted 29 feet high on Union Metal steel poles at Butte Avenue and 3rd Street, in Alliance.

See how steel MONOTUBE POLES are made

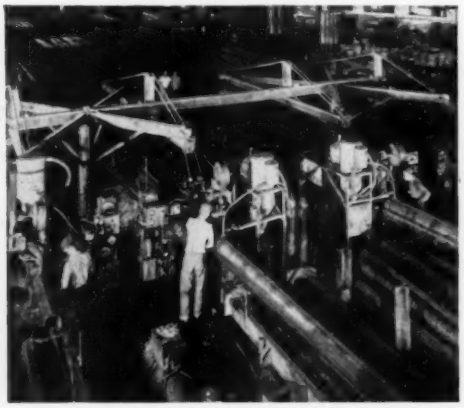
• Here shown are the key steps that assure the exceptional strength, durability, quality and appearance of Monotube Street Lighting Poles.

1 Shearing. Two identical, tapered blanks cut from rectangular sheet of steel, normally 11 gauge. For dead-end and corner poles in an overhead system, and other special services, heavier gauge steel is used if required.

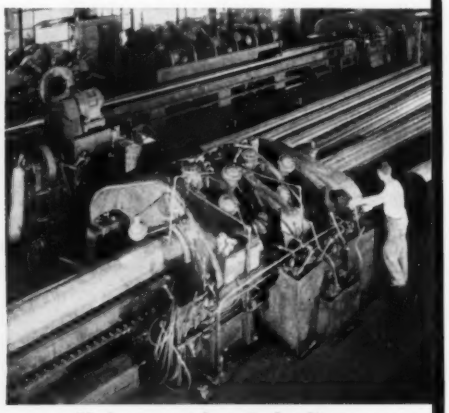


2 As the steel blanks pass through the Edge Roller, edges of the sheet are trimmed and curved upward. This aids the welding operation as the edges are butted together.

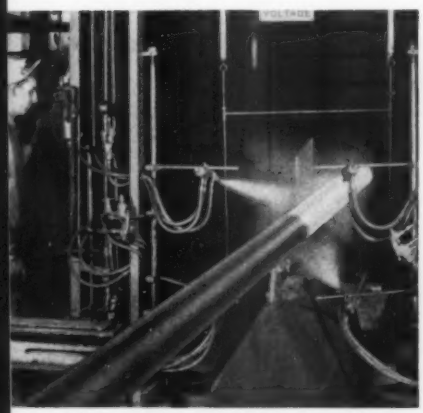
3 Primary Former gives tapered sheet its initial tubular shape. A portion of formed tube can be seen on the mandrel. The forming leaves have been released and are shown returning to open position. Tube lengths up to 40′ can be formed here.



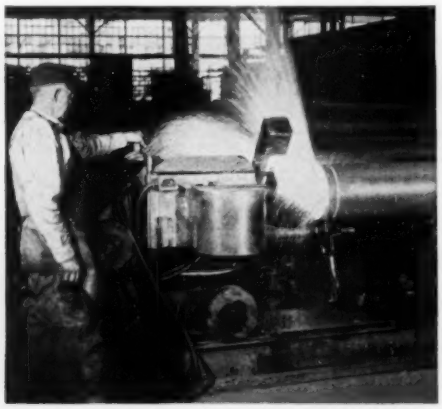
4 Secondary forming and welding operation. At an average speed of 40 to 48 inches per minute, the two edges of tube are brought together and welded. Depending upon the gauge, each machine can form and weld 3000 to 4000 feet per 24-hour day.



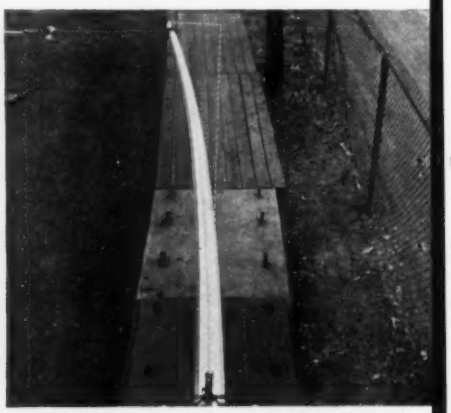
5 Under tremendous hydraulic pressure Monotubes are shaped and cold-rolled over a hardened steel mandrel. (Increases yield strength by more than 50% of its original value). Standard and special shapes are produced with metal thicknesses from ⅛″ to ½″.



6 Electrostatic spray painting provides a smooth, uniform outside prime coat. As the Monotube travels through the charged field, it is bombarded with paint particles. On its return trip, an air pressure spray gun thoroughly paints the inside.



7 Oxygen cutting torches square ends simultaneously and cut pole to the desired length. The Monotube is then ready for assembly and final inspection. Under normal conditions, finished and semi-finished Monotubes are stock-piled for prompt delivery.



8 Monotube poles are regularly subjected to deflection tests to assure maximum resistance to shock and strain under all conditions. These scientific testing methods are . . . one additional step in making Monotube poles *your best buy.*

• If your city is considering new lighting or relighting, make sure your files contain the latest catalogs describing long-life, low-maintenance Monotube poles. Write The Union Metal Manufacturing Company, Canton 5, Ohio. In Canada: The Union Metal Manufacturing Company of Canada, Limited, Brampton, Ontario.

1906 *Fiftieth Anniversary* 1956

UNION METAL

Monotube Poles

Alliance's city hall area is well lighted.

planes licensed and 3,263 airmen registered for licenses other than military. In the Alliance area 126 planes and 250 pilots are listed. These constitute the local flying potential and the city has attempted to provide its airfield, the former army installation with four runways in excess of 9,000 feet, with a complete air service—including training, hangar storage, gas, charter, mechanical services, depot, cafe, weather and communications.

Fifteen blocks of "whiteway street lighting" were completed last year. Study of the replacement of the outmoded and inefficient type of downtown lighting came in its turn as all paved and curbed residential streets as of 1953 had been lighted. Bids were taken on 84 fixtures, and when the new fluorescent-type luminaire was bid in at only $7,412 more than the low bid on mercury vapor type it was accepted. Following is the resume of the 1955 white-way data:

Expected Operating Cost Comparison

New fluorescents installed	38.22 kw
Old incandescents taken out	31.62 kw
	6.6 kw or 21% increase

Attained 1.8 foot-candles on pavement plus seeability characteristic of fluorescent lighting.

Dollar Cost on Installation

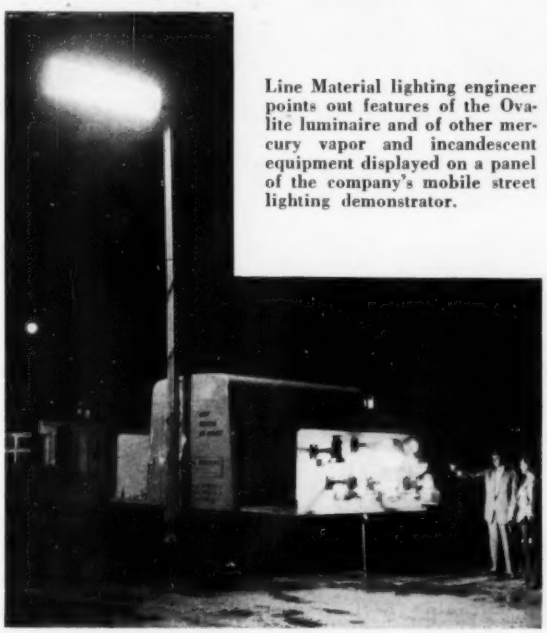
84 new fluorescents:		
Labor (incl. painting poles and construction of bases, erection, etc.)	$ 4,357.95	$ 51.88 per unit
Materials (incl. readi-mix cement)	2,378.36	28.31 per unit
Gas, trucks, insurance, and misc.	515.60	6.14 per unit
	$ 7,251.31	$ 86.33 per unit
Contract (Incl. GE No. 206 fluorescent luminaires with lamps for operation on 6.6 ampere series for aerial construction on 30' pole mountings (Union Metal steel poles). Five regulating transformers (150 watt total), conductor, hardware and some underground cable).	27,319.00	325.23 per unit
Total	$34,570.31	$411.56 per unit

As a further result of the 1955 program, the following figures are presented in miles of:

Improved residential streets	17.2
Residential streets lighted	15.3
Business streets	4.7
Business streets lighted	4.5
Arterials (Emerson, Mississippi, Tenth and part of Box Butte)	3.7
Arterials lighted	3.7
Street lighting for the above, total lumens	5,590,000
Total KW load	240
Total lights, including 4 per fixture for fluorescents	1,285
Total street light standards	1,033

Alliance has the reputation of being a well-lighted city. More benefits than even the beauty of the lighting are on record in the form of less crime and fewer traffic accidents.

Shown by a Light Truck



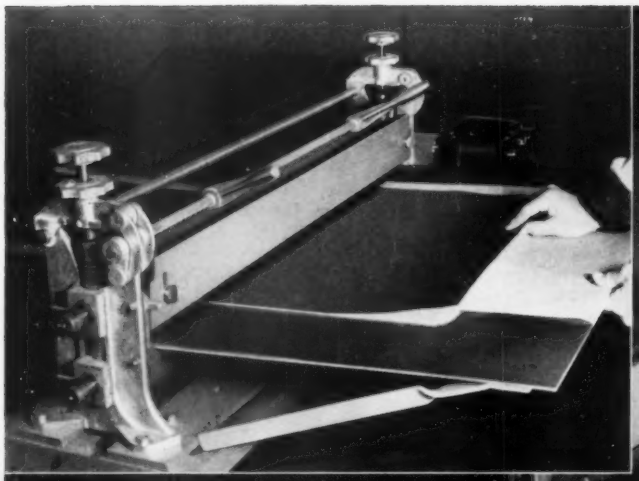
Line Material lighting engineer points out features of the Ovalite luminaire and of other mercury vapor and incandescent equipment displayed on a panel of the company's mobile street lighting demonstrator.

WHAT will this luminaire look like on our street? What kind of lighting job will it do?

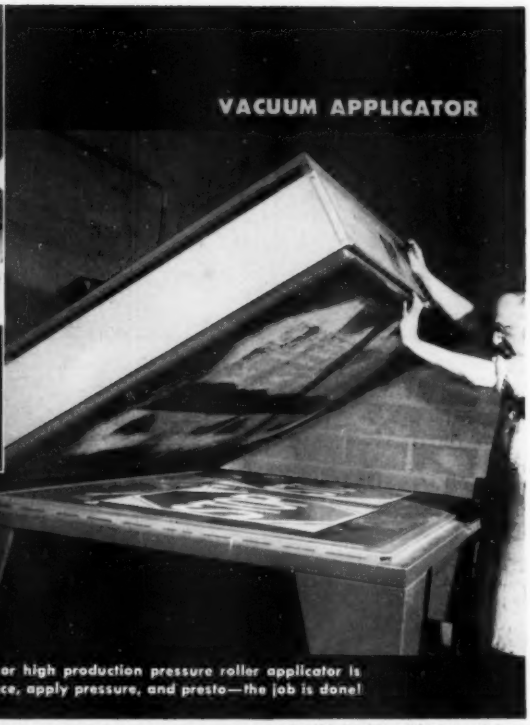
Using the mobile display unit shown here a Line Material lighting engineer can give on-the-spot answers. He can demonstrate incandescent, mercury vapor, or fluorescent lamps and luminaires on a portable street lighting standard. Or he can demonstrate several types of equipment on the truck's display panel.

In addition to luminaires and supports, the mobile unit has a gas-driven 120-volt generator and an aluminum standard. Segmented for easy erection, the aluminum standard provides a 25-foot mounting height.

According to S. Standley of Line Material Co., Milwaukee, Wis., product manager for street lighting, the unit is being scheduled to fill customers' requests.



PRESSURE ROLLER APPLICATOR



VACUUM APPLICATOR

Applying Grotelite reflective sheeting by either vacuum process or high production pressure roller applicator is quick, easy. Just place Grotelite sheeting over prepared sign surface, apply pressure, and presto—the job is done!

GROTELITE REFLECTIVE SHEETING

Easy to apply by any accepted method... Vacuum Applicator or Pressure Roller!

GROTELITE SS OUTSTANDING for TARGET VALUE!

Grotelite Reflective Sheeting provides maximum target value, stands out on the blackest night, in the foulest weather. It withstands extremes of temperature and humidity, remains in excellent condition after years of service. For brighter, safer, more durable reflectorized signs, insist on Grotelite SS!

Grotelite Reflective Sheeting can be applied by any accepted method to flat blanks or blanks with embossed borders. It is furnished in oversized sheets with trim allowance for application to any standard sized blank, in economical easy to handle lengths or precut to exact size for application inside embossed borders.

Grotelite Sheeting bonds quickly and tightly, is extremely flexible but has sufficient body so that it is easy to handle—won't crack, chip or craze.

For the complete story, send for Catalog No. 754-T today!

Grotelite

THE GROTE MANUFACTURING COMPANY, INC.
Established 1901 • Bellevue, Kentucky • Opposite Cincinnati

By W. Allen Fenimore
Chairman
Mount Holly Township
Planning Board
Mount Holly, N. J.

The first of the three steps to make a city a traffic strainer is to provide a ring of streets for deflecting through traffic away from the business district. Mount Holly not only has done this but is taking steps to protect residential neighborhoods as well

To Move Traffic Around Protected Neighborhoods

MORE and more, every community is being affected by the increasing use of the automobile. One of the least understood phases of street planning is the necessity of adequately carrying present and potential traffic volumes on a few arterial streets and designing or redesigning all remaining minor residential streets for complete protection from traffic intrusion. The drastic increase in the use of the automobile in the last 25 years has shown that, where once quiet residential streets carry excessive volumes of traffic, the residential neighborhoods have declined in desirability and in value.

The ideal minor street to serve and protect a residential area is the U-loop street, providing service and access from two directions but completely protecting against any through or bypass traffic movement. The dead-end street, or cul-de-sac, with an adequate turn around at the end provides excellent protection, if the street is not too long and if the houses are not too close together.

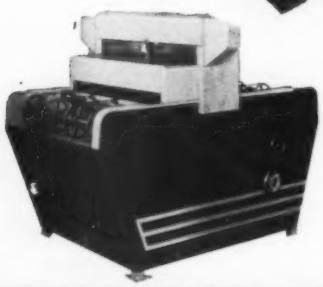
Of course the necessity for widening most of the arterial streets is inevitable, particularly if more and more existing and proposed home neighborhoods are redesigned and designed to discourage through traffic. Traffic congestion, sometimes referred to as "hardening of the traffic arteries," will also be aggravated by the increasing number of automobiles each year.

Those streets shown on the accompanying map by

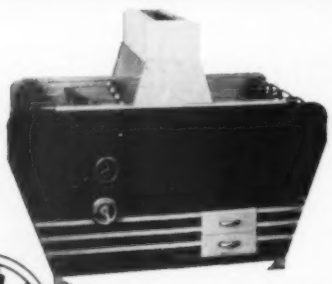
CUT COSTS . . . SPEED PRODUCTION
of quality-finished signs with the . . .

WALD *Automatic* SIGN SHOP

Continuous automatic assembly line finishing of traffic signs assures high speed production . . . standardized high quality finish . . . minimum rejects. This conveyorized automatic spray finishing system, operated by just two men, consists of three basic units which can be set up in tandem, or operated as separate units:

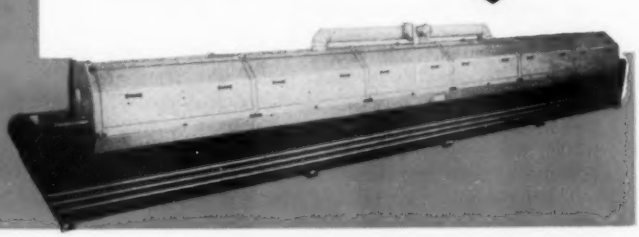


THE WALD AUTOSPRAY applies a precisely controlled coat of paint to the sign blank by a reciprocator-gun mechanism capable of spraying all types and consistencies of coating material, paints and binders.



THE WALD AUTOREFLECTOR embeds a layer of spheric-reflective material into the binder or paint film. The glass spheres are metered accurately, and deposits can be varied to any desired rate of application.

THE WALD AUTOBAKE is a combination radiant and convection oven with infra-red heating elements arranged in three zones for maximum baking effectiveness. The sign emerges with a high quality finish, tack-free and can be handled and packed immediately.



For information phone or write—

WALD
INDUSTRIES, Inc.
HUNTINGDON, PENNSYLVANIA

heavy lines are arterial streets. Except for State Highway 38, at the bottom of the map, these arterial streets converge on the center of the Township.

About 90% of the traffic entering Mount Holly and wishing to pass through the Township must necessarily pass through or very close to the business center. It is suggested that the new arterial road be located passing through the western end of the Township in a north-south direction. This should be a 40-foot paved road within a 60-foot right-of-way. It would connect with Woodpecker Lane at High Street and run south through Levis Drive, which would have to be widened to 60 feet. It would terminate at Madison Avenue. This 1-mile proposed west-side bypass would be possible by moving only seven houses.

A new street is proposed running south from the intersection of Branch and Mill Streets, to Pine Street. This should be a 40-foot paved road within a 60-foot right-of-way. This 1½-mile road could be constructed with the removal of only two houses.

The construction of these two new streets will provide a circumferential route around the entire area, shunting off most of the through traffic.

As soon as possible off-street parking facilities should be developed behind the stores on the west side of Main Street. With this parking area and the parking area behind the municipal building, curb parking on the west side of Main Street could be removed. This would have the same effect as widening Main Street by 8 feet. Our consultants in this work were Scott Bagby and Robert Catlin, city planning consultants, Montclair, N. J.

Temporary Traffic Paint Easily Removable

By GERALD R. CYSEWSKI
District Traffic Engineer
Washington Department of Highways
Seattle, Wash.

A TRAFFIC paint never clings so doggedly and lasts so long as when it isn't wanted any more. Street construction or detours often require a temporary change in traffic lines to lead and not confuse the motorist.

We have tried placing a very light line with conventional traffic paint, and tried removing that line with a solvent or paint remover. This has not been very successful because the remover did not penetrate the paint film.

Attempts were made to erase the line with an abrasion-type machine which scoured the surface. The result was not satisfactory and very expensive.

The same pavement-marking machine that applies the emergency traffic paint, Temline, also applies the detergent which removes it.

Painting over lines with a lacquer approximating the color of the asphalt or concrete surface did a fair job. But when the covering paint of the pavement color started to wear, the diversionary line reappeared and caused criticism.

The solution has been an "emergency" paint called Temline, which can be placed on the pavement with the normal equipment and which may be removed nearly 100% at little expense. This paint will bear traffic with no tracking in less than 30 minutes. We have actually allowed traffic to pass over these lines within 15 minutes after application on a warm summer day. Upon curing and drying, the paint becomes washable and, in fact, scrubbable.

The remover of this paint may be likened to a heavy-duty household detergent, applied by the same equipment used for the application of the paint or poured directly on the line to be removed.

After considerable difficulty in delineating temporary traffic control and more difficulty in removing that temporary control, this removable paint product appears to be the answer to this problem.

This really is a "Now You See It—Now You Don't."

Temline comes in colors—white, yellow, and neutral gray—and is made by Traffic Safety Supply Co., 2636 N.E. Sandy Blvd., Portland 12, Ore.

Save Lives by Control Of Highway Access

SINCE 1940, the Bureau of Public Roads in cooperation with 19 state highway departments and the District of Columbia has compiled data on the relation of access control to accident frequency. More than 2,000 miles of streets and highways have been classified as to access control. The record included over 36½ billion vehicle-miles of travel, and 108,000 accidents in which more than 2,500 persons were killed.

These records show the *fatality* rate per hundred million vehicle-miles of travel to be 2.8 where there is

mowing big places

BIG WHEELS Have It!

Rotary Model 7A-3-22, 3.0 hp, 22" cutting width

HERE'S WHAT CITY OFFICIALS . . . commercial users the country over say about **YAZOO BIG WHEELS:** "The way it will cut high grass is something . . ." "We have big rental projects . . . one of your machines wears out two ordinary mowers." "We believe it to be the best mower on the market at any price . . . " "Better performance . . . longer service . . . easier to repair!"

YAZOO HAS BIG BICYCLE-TYPE WHEELS for smooth, easy maneuverability. YAZOO guarantees longer service with harder use—at lower maintenance cost! YAZOO gives quality at a price . . . performance that can't be matched by any other mower in America. There's no other mower like the YAZOO in the power mower field today!

Write, Wire or Call Today for Catalog, Prices, Complete Information:

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Box 4527 • 3607 Livingston Road
Jackson, Mississippi

YAZOO (YAZZ-ZOO)
MASTER MOWERS
America's Finest Power Mower

Traffic Control

full control of access and 8.0 where there is no control of access.

The *accident* rate per hundred million vehicle-miles of travel is shown to be 171 where there is full control of access and 408 where there is no control of access.

The North Carolina Division of Statistics and Planning has developed some interesting statistics along this same line. The state had 8 sections of expressway-type highways, totaling about 100 miles in 1954. All these sections are of the 4-lane divided-type with a median area between the inside lanes. They carry between 4,000 and 9,000 vehicles per day. Here are the records with and without full control of access:

	Fatalities Rate Per 100 Million Vehicle Miles		Accident Rate Per 100 Million Vehicle Miles	
Expressways	Full	None	Full	None
North Carolina				
2 Sections	0.0		93	
4 Sections		2.0		140

For the state primary system as a whole the accident rate was 215 per hundred million vehicle-miles of travel. The sections of full control of access had 34% fewer accidents than the sections with no control and 57% fewer than the average primary road.

Governor Goodwin J. Knight reported that the overall accident rate on the heavily traveled rural and urban freeways in California during 1954 was about one-half the rate for the rural state highway system as a whole and that the fatality rate of 1.92 was less than one-fourth as high.

A good measure of the value of access control in reducing accidents can be obtained by comparing experience on parallel highways, since they are used by the same drivers and vehicles as a group, and the general pattern of driver behavior for the area applies to both. Here are three examples:

	Fatalities Rate Per 100 Million Vehicle Miles		Accident Rate Per 100 Million Vehicle Miles	
Parallel Roads	Full	None	Full	None
Shirley Highway				
Virginia	4.2		205	
U. S. Route 1				
Virginia		15.9		685
Merritt Parkway				
Connecticut	4.1		250	
U. S. Route 1				
Connecticut		8.1		481
Industrial Expressway				
Michigan	2.5		140	
U. S. 112		4.5		495

There is a wealth of evidence in addition to the examples presented here which shows that the death rates on controlled-access highways are typically less than half the national average for all highways and this advantage looms still larger when total accident rates are contrasted.

Controlled-access highways eliminate or reduce several specific types of accidents. Accidents involving pedestrians for example are almost entirely eliminated by the use of fences, overpasses, and underpasses.

The head-on type of accidents, or right-angle collisions, are the largest single group on conventional highways and in addition they are frequently serious,

(Continued on page 164)

"Much more protective when made reflective"

. . . by PRISMO

Using Prismo reflective marking materials instead of ordinary traffic paint greatly improves your safety program—and does so economically.

Prismo reflective materials give round-the-clock performance, are more legible and distinct by day, flash out brilliantly at night, in foul weather, downpours, fog, smog and drizzle. And during the dangerous hours of dusk, they stand out bold and sharp, providing positive protection for pedestrians and drivers alike.

Many traffic engineers believe Prismo reflective materials have made conventional traffic paint obsolete. One reason for this is their economy—Prismo reflective materials outlast ordinary paint four and five to one. Initial cost is low, installation is fast and easy, and durability is unexcelled. Next time you paint for safety, try Prismo on streets and highways, parking lots, safety zones, in garages, warehouses and anywhere that caution and directional markings are needed.

For a permanent-type marking material, Prismo Plastix is supplied in squares, dots, strips and in letters, digits, prefabricated symbols and legends.

For specific information on Prismo reflective materials, write —

PRISMO SAFETY CORPORATION
Huntingdon, Pennsylvania

UP TO 72"

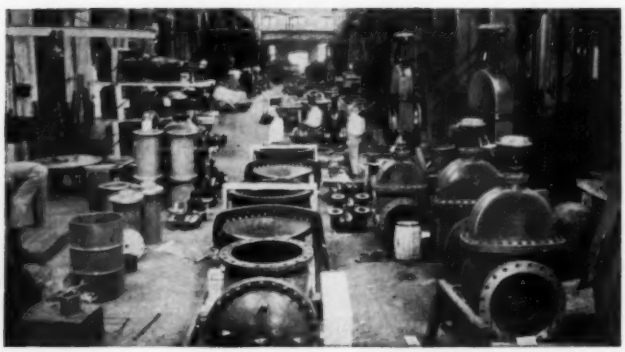
LUDLOW VALVES

The water supply for thousands of people may depend upon a few large valves which must be reliable. Only a huge, specially equipped foundry, backed by giant tools, in a modern precision machine shop can supply this dependability. Ludlow has been the headquarters for large valves for nearly a Century.

LONG LIFE and DEPENDABILITY are built in. Ludlow Valves are fully bronze mounted. The two piece wedging mechanism is simple and rugged. The double disc parallel seat construction results in a wiping action that cleans the seats during the closing operation. The stems are special high tensile strength Ludlow manganese bronze with precision cut modified acme threads.

"NO POSSIBLE DIFFERENCE IN FIRST COST CAN OVERBALANCE THE PERPETUAL ECONOMY OF QUALITY."

17

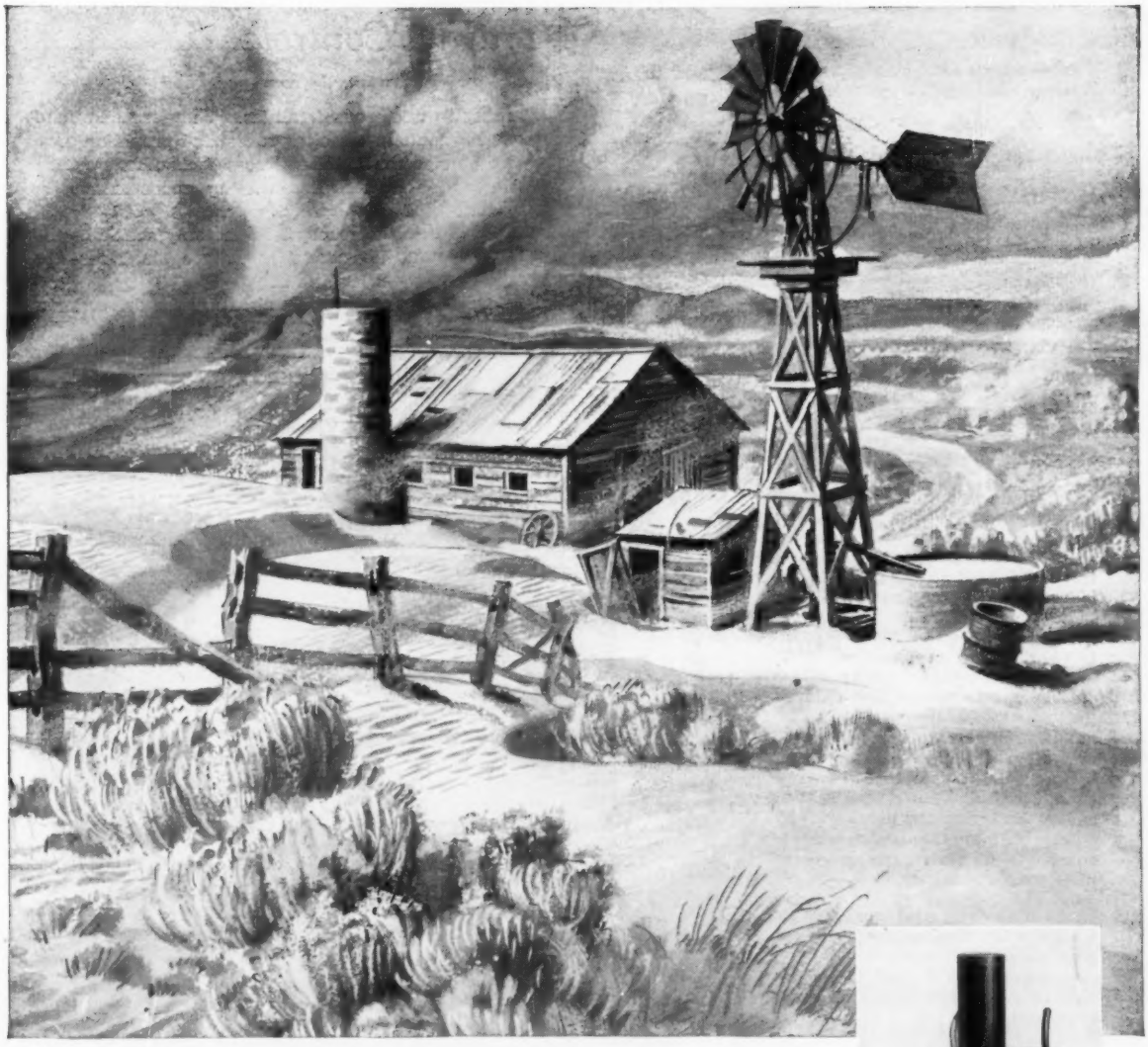


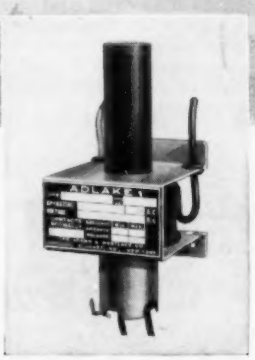
Ask for Bulletin 54W

THE LUDLOW VALVE MFG. CO., INC. TROY, N.Y.

TRADE LUDLOW MARK

GATE VALVES • FIRE HYDRANTS • SQUARE BOTTOM VALVES
CHECK VALVES • TAPPING SLEEVES • AIR RELEASE VALVES





If you have a dust and dirt problem, it'll pay you to use

Adlake mercury relays

Adlake relays require no maintenance whatever...are quiet and chatterless...free from explosion hazard. Dust, dirt, moisture and temperature changes can't affect their operation. Mercury-to-mercury contact gives ideal snap action, with no burning, pitting or sticking. Time delay characteristics are fixed and non-adjustable.

For more information about Adlake Relays, write The Adams & Westlake Company, 1176 N. Michigan, Elkhart, Indiana

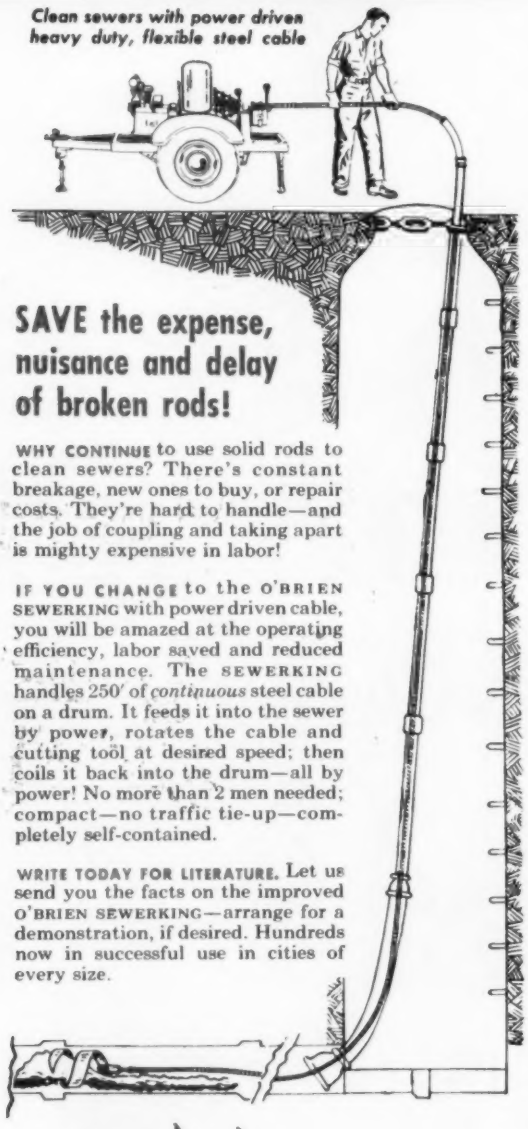
The Adams & Westlake Company

the *original* and largest manufacturers of mercury plunger-type relays

Established 1857 • ELKHART, INDIANA • New York • Chicago

Adlake 99th year of serving the transportation building and control industries

Clean sewers with power driven heavy duty, flexible steel cable



SAVE the expense, nuisance and delay of broken rods!

WHY CONTINUE to use solid rods to clean sewers? There's constant breakage, new ones to buy, or repair costs. They're hard to handle—and the job of coupling and taking apart is mighty expensive in labor!

IF YOU CHANGE to the O'BRIEN SEWERKING with power driven cable, you will be amazed at the operating efficiency, labor saved and reduced maintenance. The SEWERKING handles 250' of *continuous* steel cable on a drum. It feeds it into the sewer by power, rotates the cable and cutting tool at desired speed; then coils it back into the drum—all by power! No more than 2 men needed; compact—no traffic tie-up—completely self-contained.

WRITE TODAY FOR LITERATURE. Let us send you the facts on the improved O'BRIEN SEWERKING—arrange for a demonstration, if desired. Hundreds now in successful use in cities of every size.

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• Send us literature on SEWERKING, without obligation.

NAME OF CITY _____ STATE _____

STREET ADDRESS _____

SIGNED BY _____

TITLE _____ DATE _____

AC-1056

Mail to: O'BRIEN MANUFACTURING COMPANY

Traffic Control

(Continued from page 160)

resulting in numerous fatalities. They are eliminated by closing some intersecting roads, and providing grade separations so that vehicles cross each other at different elevations where intersecting roads cannot be closed.

With a few minor exceptions the only accidents that occur on controlled-access roads are single-car accidents and rear-end collisions.

These are usually brought about by the driver losing control of his vehicle. The high standards of alignment and sight distance on access-controlled roads, however, make it difficult for even the reckless driver to get into trouble.

Not by Engineering Alone

Despite the advantages of correct design, the education and enforcement phases of accident prevention can never be eliminated, while a million boys and girls reach driving age each year.

ROBIE DUNMAN
Transportation Economist
U. S. Bureau of Public Roads

EDITOR'S NOTE: This article is from an address by Mr. Bunman, "Can $26-Billion Buy Highway Safety?" presented before The Massachusetts Safety Council, March 19, 1956.

Traffic Survey for Brooklyn, N. Y.

ROADSIDE interviews to determine the origin and destination of vehicles entering Downtown Brooklyn have just been made by New York City's Department of Traffic. The interviews were conducted under the direction of Lloyd B. Reid, traffic engineering consultant, and by students from the Polytechnic Institute of Brooklyn, who are specializing in traffic engineering.

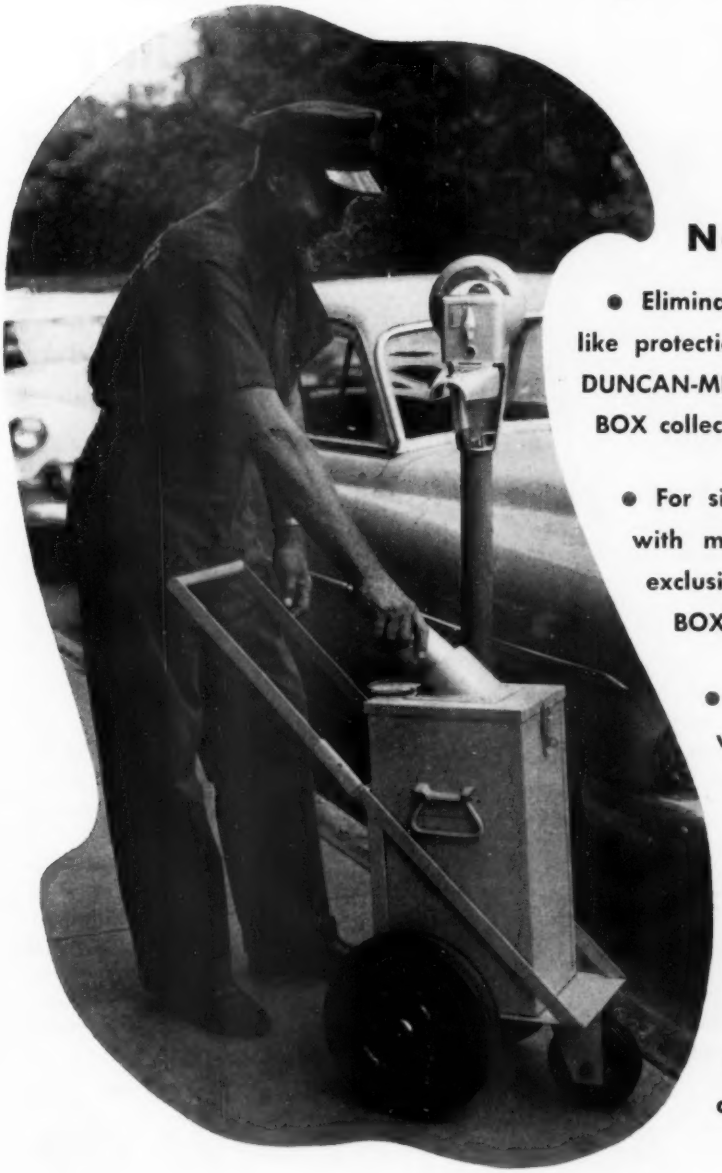
The study includes an analysis of street capacities, one-way operation, widenings, and improved traffic signal systems.

Lives That "Hang by a Wire"

THE proper functioning of fire alarm signals and traffic lights depend on the manner in which wiring in these safety control devices is terminated.

William D. Hanby, Market Extension Manager, American Pamcor Inc., Subsidiary Aircraft-Marine Products, Inc., points out that faulty connections have caused many unnecessary mishaps. To avoid this a good many responsible officials for traffic control use such devices as pre-insulated crimped solderless terminals and connectors. Much lower maintenance results. Aircraft-Marine Products, Inc., Harrisburg, Pa., is rated the world's largest manufacturers of wire termination devices. They make the AMP pre-insulated diamond grip terminals. They are vibration-proof and corrosion resistant and are sold by American Pamcor, Inc. of Havertown, Pa.

Security risk ?!?



Not on "Main Street"

- Eliminate all temptation by providing vault-like protection to parking meter receipts with DUNCAN-MILLER's Model "60" ONE SEALED BOX collection system.

- For simple, convenient, rapid collections with maximum security, DUNCAN-MILLER exclusively offers the finest SEALED COIN BOX system ever devised.

- A demonstration will readily convince you of its many advantages.

- In addition to providing assurance of maximum weekly revenue, DUNCAN-MILLER Model "60" meters are not dependent upon frequent winding by City personnel. They stand alert, ready to operate under all weather conditions. *Write Today*

THE DUNCAN -MILLER "60" ®

DUNCAN PARKING METER CORP.

835 NORTH WOOD STREET, CHICAGO 22, ILLINOIS • FACTORIES: HARRISON, ARKANSAS AND MONTREAL, P.Q., CANADA

Manufacturers of fully automatic and manual parking meters.

Allis-Chalmers LOW-COST Model D

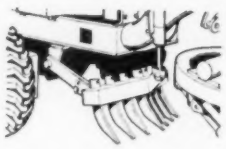
BIG

in power
in strength
in versatility

THE MODEL D GRADER HAS THE POWER to tackle bigger jobs. With either 50-hp gasoline engine or 50-hp diesel engine, there's extra torque and lugging ability for top performance on all projects.

BIG-GRADER DESIGN means long life for the Model D — regardless of the job. Strong, single-member main frame . . . husky drawbar and one-piece circle . . . work-boosting ROLL-AWAY moldboard . . . ground-gripping tandem drive . . . precision control . . . easy operation and simple servicing — all are plus performance advantages.

JOB-MULTIPLYING ATTACHMENTS make the Model D a *specialist* on many applications:—



HYDRAULIC SCARIFIER — exclusive mid-ship mounting under D's heavy end for better steering, maximum traction and full penetration. With seven removable teeth, scarifier cuts a swath 27¾ in. wide.

ALSO output-boosting extras — rear-mounted ⅝-yd loader, shoulder maintainer, windrow eliminator, snowplow blades. Plus optional equipment — including power circle turn, shiftable moldboard, leaning front wheels, all-weather cab, heater, etc.

ROLL-AWAY is an Allis-Chalmers trademark.

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See the Model D at your Construction Machinery Dealer — headquarters for True Original Parts and Service.

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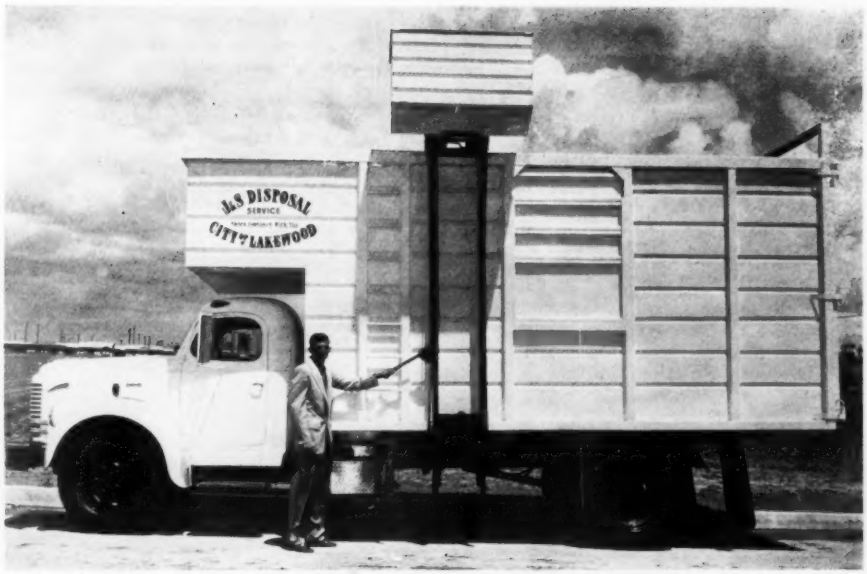

The J. & S. Disposal Service, one of the refuse collectors under contract with the City of Lakewood, uses a large power hoist trash body mounted on a Reo Chassis.

Zone-Type Refuse Contracts

Lakewood, Calif., arranges multiple contracts for trash collection under a carefully developed set of specifications and regulations

By HENRY L. GOERLICK
Assistant City Administrator
Lakewood, Calif.

This refuse collection body and hoist mounted on a Ford chassis was manufactured by the Western Body and Hoist Company of Maywood, Calif.

PRIOR to the inauguration of our present trash-collection program, the city was open territory to any collector who was willing to pay the required business license. As a result, over a dozen groups were working the city without any over-all control over fees, frequency of collection, or area served. The charges for service were not uniform, and the standards of service varied considerably.

The city realized the need for improvement ever since Lakewood began its rather spectacular growth. In 1955, a corrective program started taking shape to bring some order out of the existing chaotic system and to exert some definite control over the whole operation.

Lakewood has one distinctive feature to its refuse-collection picture that deserves attention. The collection of garbage is an insignificant part of the operation. Over 90% of our homes have automatic kitchen garbage grinders, and all newly constructed homes are required to install these garbage-disposal units under an existing city ordinance. All that we have to collect is paper, tin cans, and other nondecomposable trash.

We felt that in this reorganization the work could be done satisfactorily without creating another municipal department. Basically, what we needed was some control over existing collectors who were willing to do what the city felt was necessary. Our trash ordinance was the result.

Zones

Under its terms, we have divided the city into four zones. With the exception of Lakewood Center, a commercial area, each zone is the territory of a single collector who serves about 3,300 homes. For this exclusive right the collector pays the

city a yearly fee of $1,500. His contract runs for 2½ years. Lakewood Center is still available to any collector willing to pay the business license fee amounting to $250 annually per truck.

We also have one other portion of the city known as the Mayfair area. This currently is being served by the County Trash Disposal District, soon to be dissolved. The Council has not yet definitely determined how this area will be serviced when the District discontinues collections.

Ordinance

The new ordinance specifies the standard of service, type of equipment, and the amount that the collectors can charge for service. Significant points in the ordinance are these:

- Collection vehicles, as an absolute minimum, must be equipped with watertight metal bodies and covered by a suitable watertight tarpaulin or other satisfactory means.
- Trucks must be maintained in good mechanical repair and shall not be more than five years old.
- All trucks must be painted white and in a distinctive spot carry the wording, "Under contract with the City of Lakewood."
- Trucks must be cleaned and washed at least once a week, or more often if the health officer directs. Any truck that transports garbage shall be washed, disinfected at least once daily.
- All employees must be dressed uniformly.
- Contractors must inform the City Administrator in writing about the type of trucks, number, routes followed, days and approximate hours on each route, in each zone.

The collectors charge $1 per month and handle all billing and collection functions. The city has no connection with the operation except to oversee the collectors and make sure that the standards and other requirements that have been set down are being met.

Two Bonds Required

The city requires two bonds: one amounting to $2,500 to correct or pay for damage to the property of others; and the other for $15,000 to guarantee faithful performance. We also require evidence of appropriate insurance.

The present system went into effect in April 1955. To date, we feel that it has worked out well. Minor problems developed early in the program, but these all have been resolved. The citizens seem well satisfied with the calibre of service they are receiving.

Can Business Attract Voters?

OUR form of government was designed to promote the freedom of people in free markets, the free flow of commerce, and a free business system of incentives and competition for the benefit of all. This was pointed out in a letter for circulation among General Electric management.

Role of Business

Much that is happening today will restrict, rather than enhance, the ability of businessmen to make possible an ever-rising standard of living for the American people. Many politicians and public officials consider it good politics to be antibusiness. Yet business is the principal source of the incomparably high standard of living Americans enjoy. At the polls people seem to vote in droves for the candidates who say the interests of business and the interests of the people are opposed.

There always have been businessmen foolish enough to short-change the public to gratify their personal ambitions. The proportion of crooks among businessmen is no higher than in any other group of people. Yet the exceptions have been blown up into an appearance of being the rule. That's why politicians find it so useful to assault business. The people who know the truth don't explain it. Once the voters understand that the success of American business is tied to their own needs, it can no longer be good politics for politicians to be antibusiness.

The big reason that union officials are thought to be so important politically while businessmen are usually so impotent is that the politicians figure union officials can and do influence votes, while businessmen can't and don't. It can be good politics to be on the side of business when the public knows and is assured that business is for what the public needs.

What businessmen must do to gain the confidence and support of the voters and the politicians is first, of course, to act right. In every thought and deed and in every association with anyone, businessmen must adhere to the highest ideals of thoughtful good conduct.

Then, to make sure their good deeds and intentions are known, businessmen must launch a program of getting the fair political treatment they have come to deserve.

Ingredients for Success

The ingredients for success here number only five:

1. ***Good issues.*** Obviously, business must never support any other kind of cause.
2. ***Money.*** Too many politicians figure unions are now the main source of enough money and votes to win elections. Individual contributions, raised ethically and legally, can supply all the money that is needed.
3. ***Communication.*** The voter can no more be expected to vote for a cause he knows little or nothing about than a customer can be expected to buy an unknown product.
4. ***Leg-Work Organizations.*** As any effective precinct captain knows, political success depends in the last analysis on legwork by scores of individuals who are alert, articulate, sold on the justice of their cause, and who can do the final persuading and get out the vote of the right individuals on election day.
5. ***Speaking Up.*** Businessmen must become active, competent, known and accepted.

These are the things businessmen need to do to become important in the political arena.

The Call

This is no challenge to take over government and run it for the special advantage of business. To the extent that businessmen or farmers, labor officials or lawyers, or any other group can get the power to run the government in their special interest, democracy has failed. It is a call to correct misinformation and keep it corrected, in the interests of all the people.

There's EXTRA Performance in EVERY ATTACHMENT

with AUSTIN-WESTERN All-Wheel Drive and All-Wheel Steer

V-Plow With All-Wheel Drive, there is plenty of power and traction for opening rounds—and especially important when thick crusts have formed on old snow.

Snow Wing Rear Steer makes it easy to maneuver around highway signs, or other obstructions; is also used to resist the side thrust of a heavy load on the wing.

Bulldozer All-Wheel Steer provides exceptional maneuverability under all conditions, and is also used to angle the blade on work like this, to shed the material sideways.

Roller Another attachment which often takes the place of a costly, single-purpose roller. It has many uses . . . on many materials, including gravel, blacktop and soil cement.

Plainsman Used for building new roads, widening old roads or raising grade elevations, this elevating grader can be attached or detached in a matter of minutes.

Scarifier Most popular of all attachments. All teeth are used for light work; while every other tooth can be removed for deep scarifying of hard material.

All-Wheel Drive for maximum mobility and 30 percent more Power-at-the-Blade—power that is made still more effective by Torque Converter drive. All-Wheel Steer for extreme maneuverability. Put them together and you have teamwork that keeps Austin-Western Power Graders working where other graders fail. Austin-Western Works, Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Aurora, Illinois.

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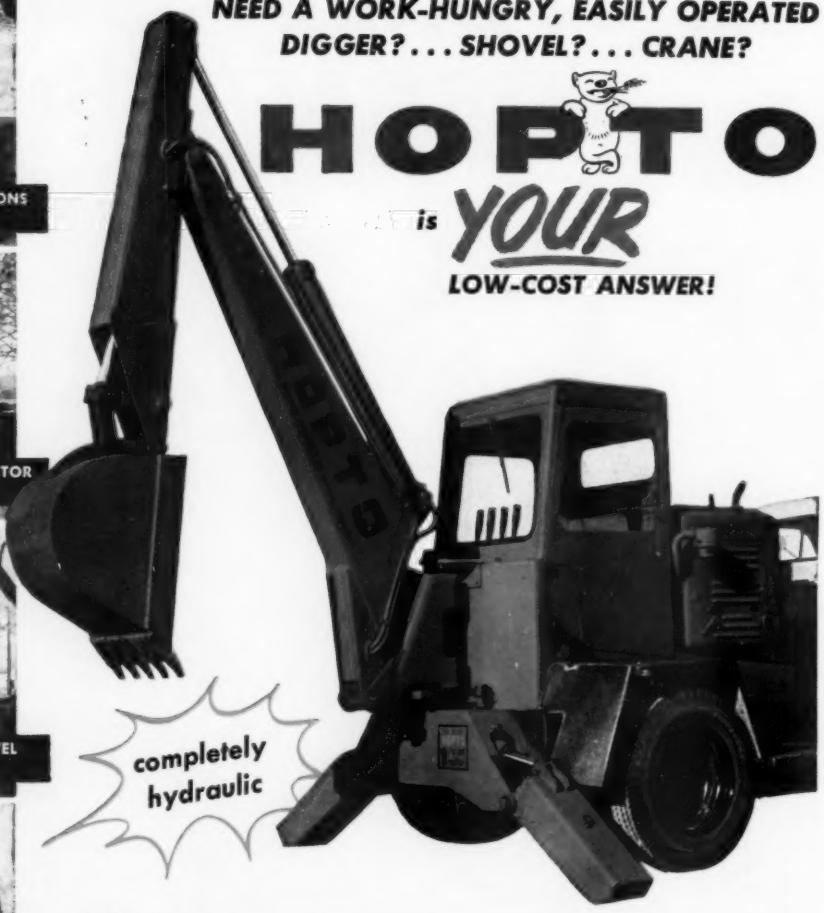
is YOUR LOW-COST ANSWER!

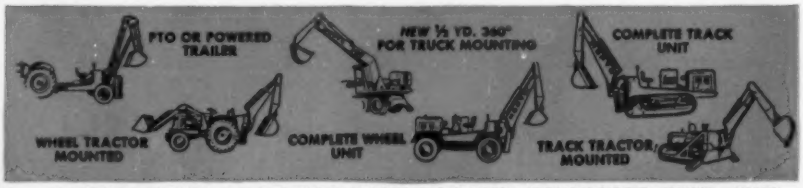


Here's the fast cycling, 200° swing, *completely* hydraulic digger-shovel-crane that reaches out for work! HOPTO has a 16½′ reach at ground level *beyond* the boom mounting; digs more than 11′ deep and dumps at 9½′ with backhoe and 11′ with shovel bucket! ! ! It's the easy-to-operate unit your handy man will handle like a veteran in half a day!

HOPTO mounts on *any* ton-and-a-half or larger truck. Hydraulic outriggers level unit and take load from truck chassis and springing mechanism! Feather-touch controls in the full visibility cab actuate every movement of unit *and* outriggers. No belts, pulleys, cables or sheaves on a HOPTO! It's *completely* hydraulic!

The 1500 PSI hydraulic system has overload relief valves, double wire braided hoses, 5″ inside diameter hydraulic cylinders with 2⅜″ chrome plated piston rods, and a large oil reservoir for most efficient operation! Self aligning bearings and hardened alloyed steel pins . . . formed steel plate boom, stick, and sub-frame . . . direct mounting of pump on power unit . . . crowd cylinder *above* boom . . . these are but a few of the many *long-life, low-maintenance* features of the quarter-yard, work hungry HOPTO.

Write for complete information on the model or models for your requirements



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Relocation Is Not a Numbers Game

Whether for slum clearance or expressway construction no relocation effort can ignore the human element

By DR. HARRY W. REYNOLDS, JR.
formerly of University of Pennsylvania
Political Science Dept.
Philadelphia, Pa.
now with School of Public Administration
University of Southern California
Los Angeles, Calif.

DURING the next five years the chances are high that your city or town will have to move a large block of families to alternate homes to make way for a new public facility. In some cases you may be cleaning out a hard core of slum buildings; in others, a new highway or parking lot may require space occupied by dwellings. No matter what the project is, when your city starts to displace families, it will be involved in a new municipal activity that is peculiar to this age of rapid urban change. That activity is relocation.

Unknown to the vocabulary of city officials 15 years ago, the word relocation has jumped to prominence with today's growing interest in programs designed to clear slum areas. New urban highway construction has also spurred similar relocation activities involving the uprooting of whole blocks of families and the helping of them to find new homes to replace those destroyed on the old sites.

But as more than one official has discovered in the short history of relocation, the movement of families is not just a problem of finding empty dwellings and directing relocatees to them. To do so is to plunge headlong into relocation's biggest pitfall. For instead of being the "numbers game" that many officials mistake it for, relocation is very much a human and social problem in which matters such as neighborhood and family ties and cultural patterns assume a very tangible significance.

A Lesson to Be Learned

This latter fact is the overriding lesson that can be learned from an analysis of the City of Philadelphia's experience in relocating some 1,300 families during the initial years of that city's redevelopment efforts. For the most interesting fact about Philadelphia's experience is that things didn't turn out as they were planned. Although the residents in the three clearance areas involved were offered decent housing units in areas throughout the city, fewer than 40% accepted them. Instead, the more than 60% who preferred to find their own relocation housing paid out higher rents for dwellings that were less desirable than those recommended by the city.

What are the answers to these puzzling results? Did the city fail to do its job in steering families to decent housing units? If not, why did more than 60% of the families seek other than city recommended units? Here is the story:

The Philadelphia Story

Between September 1, 1951 and May 1, 1954, 1,307 families were moved out of five separate slum areas in Philadelphia as a step toward the redevelopment of these sections. This relocation effort was the responsibility of the Philadelphia Housing Authority which planned to build up three of the areas with public housing, and the Philadelphia Redevelopment Authority which planned diversified uses for acquired land, including new private housing in two of the areas.

The families involved in the move were predominantly Negro. Of the 1,307 families, some 1,129 or 86% were non-white. This fact was, of course, of major importance in explaining the experience of the relocation effort.

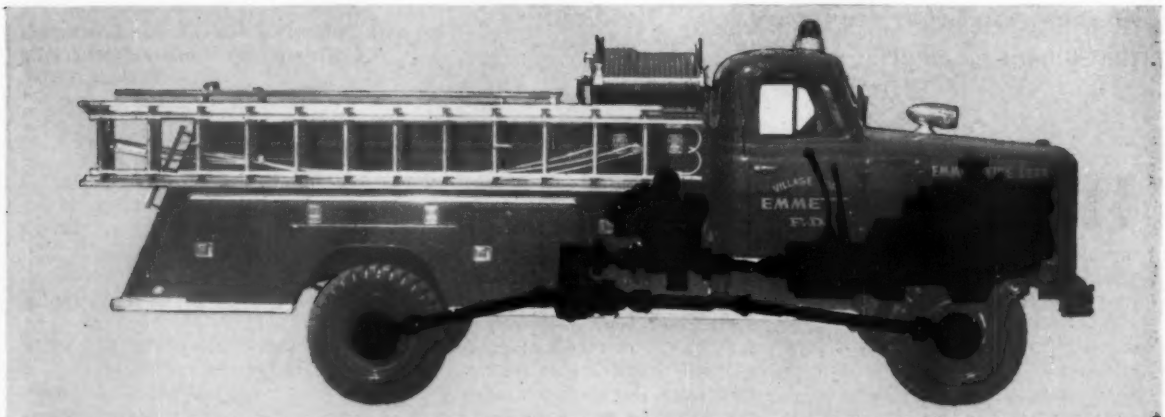
How the City Did Its Part

Both the Housing and Redevelopment Authorities, prior to displacing any slum families organized extensive information and assistance programs in the neighborhoods slated for demolition. These programs were aimed at informing the relocatee families that they would have to move, why the move was necessary, and where and how they could find other housing. Of particular importance is the fact that the informational objectives were carried out in close cooperation with local neighborhood organizations such as churches, political clubs. For several months prior to the final moving dates, meetings were held by these groups at which representatives of the Housing and Redevelopment Authorities explained the purpose of the site clearance, the ramifications of condemnation and ejection proceedings, and the rights and obligations of both the relocatees and relocators. It was also emphasized through these meetings that the city agencies would provide detailed information on the availability of vacant housing units whose rents would match the individual

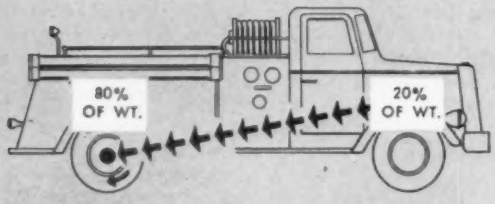
Rental Change by Method of Relocation for 145 Families

	CITY-AIDED FAMILIES				SELF-RELOCATED FAMILIES			
		Average Rent				Average Rent		
Family Size	No. of Families	Before Moving	After Moving	% Change	No. of Families	Before Moving	After Moving	% Change
2	20	$28.20	$32.31	14.5	39	$28.04	$34.88	24.3
3	11	29.34	32.53	10.8	25	30.21	37.63	24.5
4	6	32.72	35.00	6.9	16	34.39	35.83	4.1
5	4	33.55	36.51	8.8	11	32.98	35.35	7.1
6	4	34.20	36.74	7.1	9	34.00	37.36	9.8

How balanced weight distribution makes FWD safer for high speeds



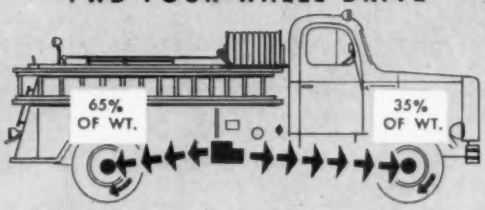
ORDINARY 2-WHEEL DRIVE



Spins easily because it is over-powered.

Drifts without power — may lock and be pushed into skids.

FWD FOUR WHEEL DRIVE



Less spin because power matches weight.

Power prevents locking and skidding—holds on turns, steers easily.

Only FWD pumpers have the patented power-divider transfer case and balanced weight distribution that gives you *true* four wheel drive! And Four Wheel Drive is the fastest, safest way to get your equipment into action.

The FWD transfer case transmits instant power to both axles in correct proportion to axle weight . . . gives gripping traction at every wheel. The powered front wheels hold to tightest turns without drift or slip. They pull out of skids rather than being pushed into them.

Driving power is transmitted to both axles for faster getaways; easier steering; faster, safer cornering; greater hill climbing ability; up to 82% greater traction on slippery streets and powerful traction that goes through hub-deep mud and loose sand or radiator-deep snow to get to off-highway water sources.

FWD pumpers carry the finest fire-fighting equipment available, designed with the experience of 43 years. But most important, you can get it into action faster and safer because it has Four Wheel Drive!

Pumper demonstrations are now being put on by FWD dealers throughout the country. Check with FWD for dates of demonstrations in your area.

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pocket books of the relocatees.

When the time came to send out displacement notices, the Redevelopment and Housing Authorities opened "rehousing offices" on or near each of the affected sites.

These offices were charged with the responsibility of surveying all families on the sites to determine their composition, income, resources for moving, and eligibility for low-rent housing. With this information on hand, the offices also compiled detailed lists of vacant and habitable dwelling units whose sizes and rents met the needs of the families to be displaced. These lists were kept current through repeated contacts with housing realtors, associations, etc.

The lists of the separate rehousing offices were exchanged frequently to eliminate duplicate and unsuitable addresses. Since it was discovered that 585 of the relocated families were eligible for admission to public low-rent housing projects, and since the existing projects were readily able to accommodate such applicants, this type of housing was emphasized.

Sixty days before actual demolition operations were scheduled to begin, final moving notices were mailed out by the rehousing offices which were staffed by one or more advisors experienced in aiding relocatees. Within two weeks each office customarily received one or more spontaneous inquiries from 30-50% of the affected families. By the end of the first month after the notifications had been dispatched approximately 90% of the site occupants had made inquiries.

The city agencies speeded the relocation work by giving repeated counseling, by lending financial assistance to certain families preparing to vacate, and by diversifying their facilities to help meet the particular needs of the families seeking assistance. In all of this activity, actual or threatened evictions were never resorted to. Finally, when all families had been moved, the clearance of each site took about 90 days.

In thus analyzing the work of the city agencies, it is clear that their efforts were successful in making contact w'th all of the affected families and in publicizing the help that they could offer to the relocatees.

When a survey was made to determine where the various families had actually relocated themselves, it became evident that the majority had moved into units other than those listed by the rehousing offices. Of the 1,307 relocated households, only 40% had chosen city recom-

Box Score on a Philadelphia Relocation Effort

		Per Cent
Families relocated	1,307	
Negro and other non-white families	1,176	90
White families	131	10
Families Seeking relocation information from city-maintained Rehousing Offices	1,170	90
Relocatees who obtained housing recommended by city agencies (including 128 families who chose public housing units)	579	44
Relocated families for which information is available	1,277	98

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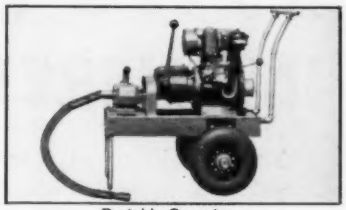
Truck-Mounted Operator


Portable Operator

Valves should be inspected, opened and closed at least twice each year. You can easily keep this schedule of recommended maintenance . . . within your budget . . . by making every valve Power-Operated with Payne Dean Powered Gate-Operators.

Truck models operate from truck transmission . . . portable units from 3 to 7½ H. P. . . . operate valves and gates as large as 60". Save time . . . reduce cost . . . improve maintenance.

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mended dwellings. The others had picked their own.

An interesting evidence of this was the number who chose public housing units. Of the 575 families eligible for these dwellings, 205 applied for admission. However, 77 families subsequently withdrew their requests and only 128 entered the projects.

The survey showed that the families who took units listed by the Redevelopment and Housing Authorities had experienced a somewhat lesser amount of rental increase than those choosing their own housing. This emerged from a study of 45 families who used the rehousing office lists and 100 self-relocated families. The accompanying table shows that the average monthly increase for the former group was $3; that for the latter group was $5.29.

Similarly, a further survey showed that only 55% of the relocated families had obtained better dwellings than they had enjoyed on the sites being cleared. Again the minority of the families that had chosen units recommended by the rehousing offices had fared better. The incidence of dilapidation in the new dwelling units obtained by the self-relocated families was twice as great as that of the city-aided families. Similarly the lack of heating facilities was one-fifth greater in the units of the self-relocated households.

In every check it was clear that the city-aided families had better housing than the others, yet most of the relocated families preferred other than city recommended housing.

A direct clue to this puzzling result was the fact that 80% of the relocated families settled within 10 blocks of the areas from which they had moved. This contrasted sharply with the fact that only 10% of the vacant units listed by the rehousing offices as acceptable were immediately proximate to the affected sites. Thus it became clear that the majority of the families preferred to accept inferior and more costly housing when relocated rather than move great distances away from their former homes. Family ties, close associations with neighbors, memberships in local churches, established businesses, professional contacts, and the informality of social groups—all these excited stronger pulls than the promise of better dwelling units in scattered locations.

The fact that the majority of the families were Negro also affected these results. The supply of private housing for low-income minority groups was definitely limited and thus the racial problem prevented many of the families from moving anywhere in the city. (This fact had been recognized and accounted for in the lists prepared by the rehousing offices.)

Thus the clear and overriding lesson of the Philadelphia experience is that all relocation efforts must take into account the strong ties that bind families to neighborhoods in which they live. Even the best laid plans will come to naught unless the cardinal principles of preserving social groupings, church organizations, and the like are observed. This is being discovered anew in New York City where families slated to be relocated from slum dwellings in Harlem are protesting vigorously because many church parishes and business ties will be destroyed in the process.

Obviously, some damage will be done to neighborhood groups in the process of the great urban changes which will occur in the coming years. But it is also obvious that if redevelopment activities are to be successful from a human as well as physical point of view more attention must be paid to this important fact of life in relocation efforts.

it's HOT IN THERE!

You're looking into a ventilation port of a McWane pipe shop annealing oven. There is an orange glow inside and the pipe is red hot. As McWane 20-foot, 2-inch and 2¼-inch cast iron pipe slowly move through this oven, all casting strains are removed. When the pipe comes out, it is high in strength, ductile, able to withstand beam load, easy to cut or tap. And remember, the 20-foot lengths save you time and money in construction costs. Furnished mechanical joint or bell-and-spigot, for IMMEDIATE SHIPMENT. Write or phone

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ALL NEW GOOD ROADS SPREADER-LINE OFFERS FAST, EFFICIENT SLEET & ICE CONTROL

STANDARD MODELS FOR EVERY SPREADING NEED!

- **Hydraulic**
- **Power Take-off**
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Fast action, maneuverability, wide coverage, accurate spread control and economical one-man operation keynote the features of the *ALL NEW* Good Roads Jet Spreader Line. Designed for quick, efficient ice and sleet control to overcome the toughest icing conditions, Good Roads Jet Spreaders are available in a complete range of sizes (for all makes and models of trucks) for spreading sand, salt, gravel, cinders, calcium chloride, lime and seal coating. Specify a Good Roads Jet Spreader for your next truck.

Good Roads Jet Spreaders are available with the following complete line of optional equipment:

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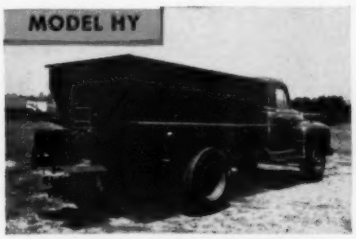
- Hinged Hopper Screens (2 or 4 section)
- Conveyor Chain Oiler
- Service Ladders
- Electric Cab Controls (Model M-2)

Friction Type Clutch on Model P.T.

MODEL MI+2

MODEL M-1 ENGINE-DRIVEN SPREADER offers dependable cab-controlled 8 HP air-cooled gasoline engine enclosed at side of hopper . . . starter powered by truck battery . . . vacuum clutch control optional. MODEL M-2 features enclosed side-mounted 14 HP engine with separate battery and ignition system . . . all cab-controlled. Optional equipment includes vacuum clutch control or electric controls in cab.

MODEL HY



MODEL HY FULL HYDRAULIC SPREADER featuring Power Take Off drive . . . Independent Speed control of spinners, and conveyor permit absolute control of spread width and material flow. Large hydraulic oil tank is built into side of hopper . . . saves space.

MODEL PT

MODEL P.T. POWER TAKE OFF SPREADER. Straight Power Take Off operates spinner and conveyor drive. Available for right or left-hand installation to suit truck. All Controls cab-mounted for greater operator convenience. Optional equipment includes cab controlled long-wearing friction type clutch.

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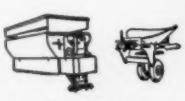
SNOW PLOWS



ICE CONTROL SPREADERS

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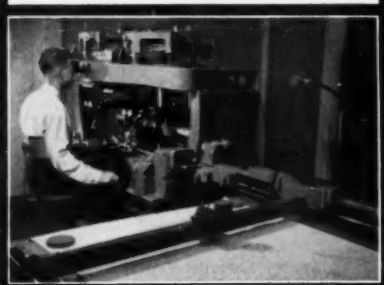

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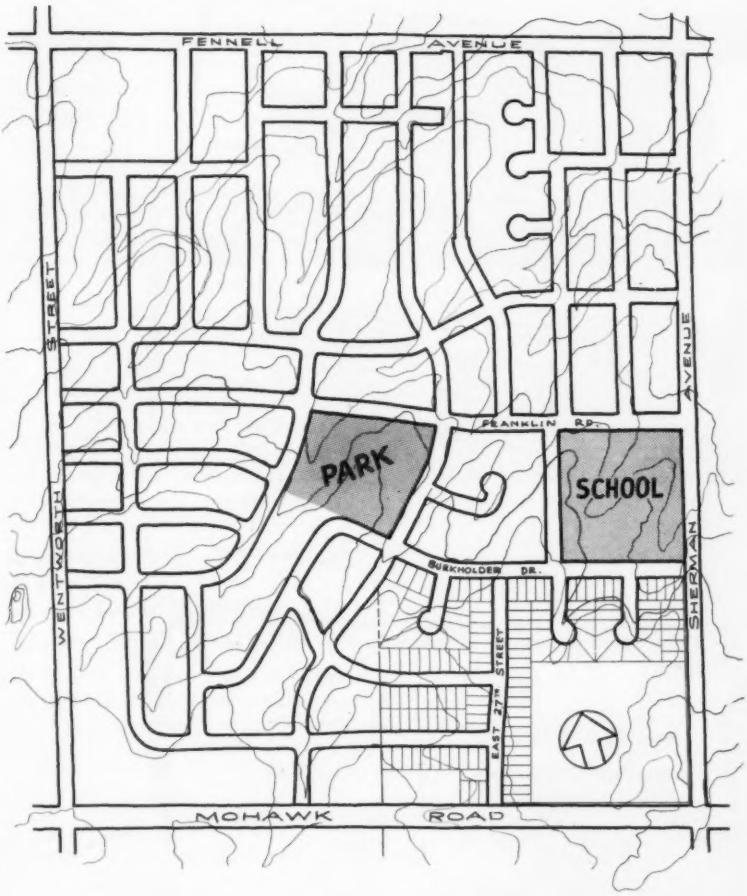
Right.
Overall plan prepared by Planning Board staff assures integrated road layout as well as locations for parks and schools for land to be subdivided by private developers.

Below.
Staff's plan is followed in plat filed by subdivider for portion of land that he owns.



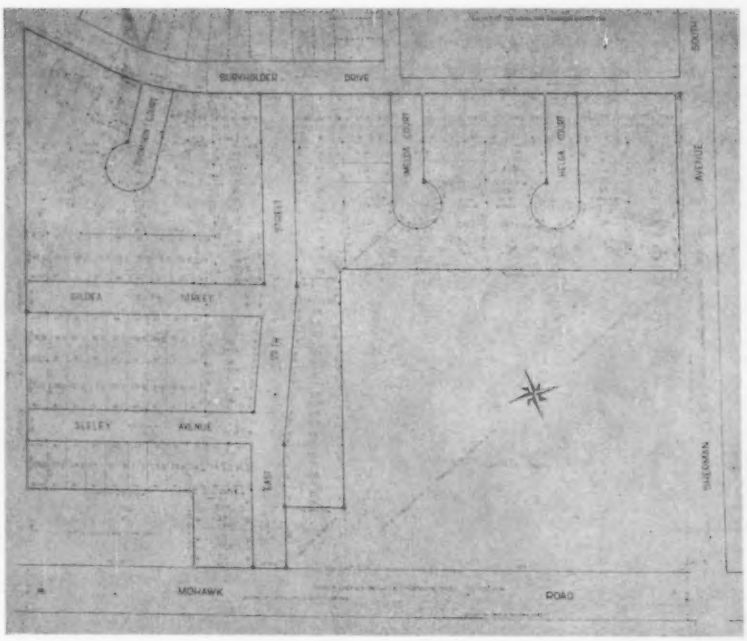
The City of Hamilton and the County of Wentworth preplan subdivisions in their undeveloped areas using contour maps prepared from aerial photographs

Preplanned Subdivision from Aerial Photographs

IN Canada, planners in the Hamilton, Ont., area have discovered that the best way to keep the rapid growth of their region under control is to "pre-plan" future residential subdivisions for areas most subject to development. By doing this and by requiring subdividers to make their own plans conform to the official designs, the Canadian planners are creating balanced neighborhoods with schools, playgrounds, shopping centers, and other urban facilities in the best and most efficient locations.

This preplanning technique is being done by the Hamilton-Wentworth Planning Area Board for a 381-square-mile metropolitan district, which encompasses virtually all of Wentworth County at the western-most tip of Lake Ontario. Heart of the district is the City of Hamilton, a busy manufacturing and commercial center.

(Continued on page 181)



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Richmond 30, Virginia

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National Park Service
Federal Office Building
Omaha 2, Nebraska

Procurement Officer, c/o
Regional Director, Region Three
National Park Service
P. O. Box 1728
Santa Fe, New Mexico

Procurement Officer, c/o
Regional Director, Region Four
National Park Service
180 New Montgomery St.
San Francisco 5, California

Procurement Officer, c/o
Regional Director, Region Five
National Park Service
421 Walnut Street
Philadelphia 6, Pennsylvania

Sincerely yours,

R. M. Rittase

R. M. Rittase
Procurement &
Property Management Officer

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Title Sup't. of Utilities

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Name H. B. Rits

Title Purchasing Agent

Address City Hall

City Canton State Ohio

Mr. A. W. WELCH
Dear Sir,

Indispensable, refer to municipal index many, many times ninty percent of the time we find the information we desire.

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CITY OF WATERTOWN, NEW YORK

C. LELAND WOOD
City Manager

May 17, 1956

The Municipal Index
470 Fourth Avenue
New York 16, New York

Attention of Alden W. Welch, Secretary

Gentlemen:

I acknowledge receipt of your 1956 edition of The Municipal Index.

I have reviewed the volume, made some comparisons with the previous year's publication and find that you have made many additions.

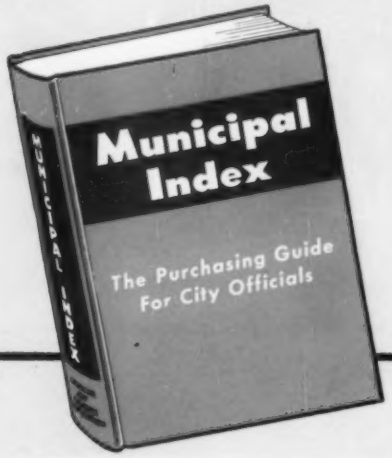
In my opinion, you have accomplished a very commendable job and this Index provides a wealth of information which is available for use by public officials. Rest assured that we refer to this Index frequently.

I appreciate very much receiving a copy of it.

Very truly yours,

clw:s

City Manager



Municipal Index

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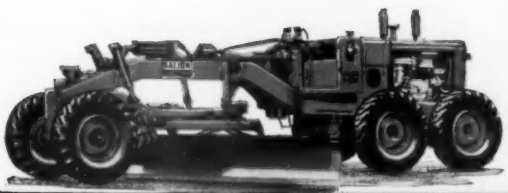

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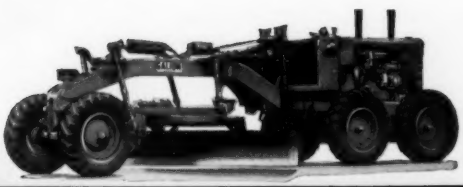

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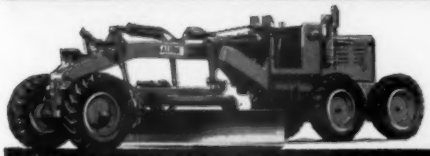

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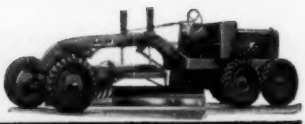

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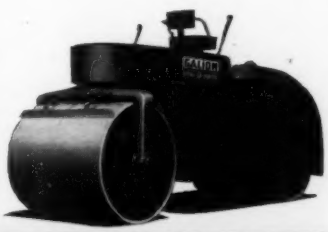

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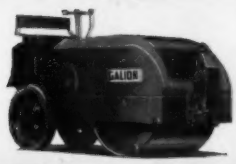

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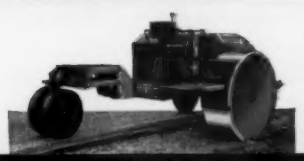

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Preplanned Subdivision From Aerial Photographs

(Continued from page 177)

Impetus for the preplanning approach to subdivision control came as a result of heavy post-war surge of growth that swelled the area population from 215,000 persons in 1946 to 285,000 in 1954. Recent studies show that this total is likely to rise to at least 340,000 by 1966. With more and more growth spreading into the sparsely populated and, therefore, largely vacant area of the surrounding towns, the joint planning board saw the need for making sure that the widely separated subdivisions would fit into a final unified pattern. At the outset, the Board set its aim at the prevention of the kind of jumble of unrelated subdivisions that had resulted from uncontrolled development in the 1920's.

One factor has greatly simplified the process of weaving disparate subdivisions together into a unified pattern. This is the grid of 200-acre blocks into which most of the Wentworth County townships are divided. These blocks, which are carry-overs from the original survey system used in laying out the Canadian countryside, are surrounded by roads on all sides. In planning future subdivisions, 200-acre blocks can be treated as a separate residential neighborhood, and, by widening them, the surrounding roads can be made into major arteries. An example of how a portion of one of the 200-acre blocks was laid out by the Hamilton-Wentworth planners and how it was developed is shown on page 177.

As staff planners at the Hamilton-Wentworth Planning Area Board have long known, their preplanning technique would be impossible without accurate county-wide maps. Such maps, produced from aerial photographs, were obtained by the Area Board in 1952 when it began its comprehensive planning program. But because maps for the entire 381-square-mile area would be prohibitively expensive if obtained in one order, the Board contracted with the Canadian Aero Services Corporation* to fly the basic photographs of the county in 1952 and provide topographic and planimetric maps of selected portions in later years. This policy has been followed to the extent that over one-third of the entire 381-square-mile area has now been mapped. This one-third covers the portion of the planning area where urban development most likely will take place in the next 10-20 years.

The completed maps, which show building locations, wooded areas, streams, ditches, railways, power lines, etc., as well as topography, have provided the Area Board's staff with an accurate picture of the existing physical conditions in the areas most subject to future growth. In addition to enabling the staff to preplan residential subdivisions, the maps have served other uses. The preliminary design of sewerage and drainage systems have been possible. Major highway patterns, as well as local street systems, have been laid out on the topographic maps. Other uses of the maps have included the selection of properties for school sites, parks, and play lots. Topographic mapping costs for the Hamilton-Wentworth Board varied from $.90 to $1.65 per acre, depending on the ruggedness of the terrain and the amount of development and available ground control. The planimetric mapping costs ranged from 25 cents to 60 cents an acre.

* Canadian Aero Services Corporation is a subsidiary of Aero Services Corporation, 210 East Cortlandt St., Philadelphia, Pa.

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"Twenty-five years ago, when we installed the water mains, supply lines and laterals for our town, we never dreamed that traffic conditions would get as bad as they are. But today, with constant, heavy traffic rumbling along our streets, we're certainly thankful that we had the foresight in 1930 to use *shatterproof* National Seamless Steel Pipe — all along the line."

National Seamless Pipe stands up well under the pounding vibration of heavy, high-speed traffic and the persistent hammering of fluctuating water pressures because it's elastic . . . ductile . . . rupture-proof. And since it's flexible steel, it "gives" with the load. That's why National Seamless won't rupture under washouts and trench settlement.

Remember these advantages when you are planning future installations. You can't go wrong with USS National Seamless Steel Pipe. It is manufactured to A.W.W.A. specification requirements, and is approved by Underwriters' Laboratories, Inc. Protective coatings are available for various service conditions.

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WALLS WITHOUT WELDS

UNITED STATES STEEL

Guide Posts for Municipal Purchasing

By R. M. TOWNSEND*

PURCHASING texts useful to the local purchasing agent include discussions of procedure, quality, inspection, inventory control, assurance of supply, price, speculation, equipment purchasing, and the disposition of waste and surplus. Howard T. Lewis's *Procurement* (Irwin: Homewood, Illinois, 1955), J. H. Westing's and I. V. Fine's *Industrial Purchasing* (Wiley: New York, 1955), and Stuart F. Heinritz's *Purchasing* (Prentice-Hall: New York, 1951) are most helpful in these areas.

Writers in the purchasing field lean toward industrial and commercial activities, and the purchasing aspects of the federal government. Worthy of mention are the Hoover Commission's *Office of General Services Supply Activities* (Government Printing Office: Washington, 1949), and a new study in 1954 by Dickson Reck, *Government Purchasing and Competition* (University of California: Berkeley, 1954).

Governmental Purchasing

There is no up-to-date text on governmental purchasing. Two "oldtimers" are still alive in this field. *Principles of Governmental Purchasing,* by Arthur G. Thomas (Appleton: New York, 1919) has a section on legal questions involved in governmental purchasing which provides an excellent background for today's complex procedures. The second "old-timer," and the principal authority in this field, is Russell Forbes and his first major work, *Governmental Purchasing* (Harper: New York, 1929).

Another recognized authority, Joseph W. Nicholson, in "6 Keys to Sound Public Purchasing" (THE AMERICAN CITY, LXVII, May 1952, p. 145) presents a concise explanation of why a purchasing agent must follow procedures from beginning to end. R. W. Beede also directs his attention to this matter in an article entitled "Basic Purchasing Procedures" (*The Municipality,* September 1955, pp 197-198). Another article, "How to Stretch the Taxpayer's Dollar," by Frank W. Whelan (*Civic Administration,* July 1954, pp. 61-62), while emphasizing the need for a good man as purchasing agent, also discusses the entire buying process.

As a check upon theory and procedure, our English friends in The Royal Institute of Public Administration have published their *Conference Report — Purchasing by Local Authorities* (London, 1954). Through the use of a question and answer approach, the reader is exposed to the problems that have been conquered by these practitioners in the field.

Completing our discussion of general literature are five publications in pamphlet or chapter form. Chapter Fourteen of *Municipal Finance Administration* (International City Managers' Association: Chicago, 1955) presents the entire purchasing procedure and includes discussion of relevant issues. The Tax Foundation in its series, *A Civic Guide to Economy in Municipal Government,* has included a concise pamphlet on *Purchasing.* Joseph M. Cunningham in *Purchasing Procedures for Local Governments* (Govforms: New York, 1955) presents a good system of forms that are available to the purchasing agent. A fourth item is Charles Rhyne's *Model Purchasing Ordinance* (National Institute of Municipal Law Officials: Washington, 1954). The last item in this group is a pamphlet by Russell Forbes on *Purchasing for Small Cities* (Public Administration Service: Chicago, 1951). In this pamphlet Mr. Forbes has presented certain basic conditions that are necessary for the existence of a successful purchasing organization and has also included suggested charter and ordinance provisions.

Centralization

The literature in the field of local governmental purchasing is solidly behind centralization, but there is little unanimity concerning the question of where this centralized purchasing should be located in the organizational structure. Russell Forbes in *Centralized Purchasing—A Sentry at the Tax Exit Gate* (National Association of Purchasing Agents: New York, 1941) firmly backs centralized purchasing with nine well-documented advantages for centralization. Drawing from Canadian experience, Thomas Plunkett in "What Advantages in Central Purchasing?" (*Civic Administration,* Volume V, August 1953, pp. 77-78) reviews the advantages derived from central purchasing in 15 Canadian cities. He includes recommendations on how partially to adopt centralized purchasing procedures in small cities.

In *Final Report — Administrative Survey, City of Long Beach, California,* Louis J. Kroeger and Associates (Kroeger: San Francisco, 1949) recommend that purchasing be placed under a Department of Administrative Services.

It is unfortunate that the question of location is not considered more thoroughly in the literature of local purchasing. Surveys of city administrations too often proceed on the assumption that purchasing is a logical off-spring of the finance department rather than carefully considering what organizational structure would best suit the needs of the community involved. Chicago, in its *Annual Report — Department of Purchases, Contracts, and Supplies* (Chicago, 1952) presents a refreshing commentary on centralized purchasing as a most successful independent department. In this report a fine understanding of the role of municipal purchasing is clearly set forth.

Cooperative Purchasing

A challenging aspect of local purchasing, cooperative purchasing, has been neglected by the writers in this field. Fortunately, however, the material that has been written is of high quality. In the late 1930's four good magazine articles brought forth the accomplishments of cooperative purchasing in those areas in which it had been adopted. Theodore N. Johnson in "The Cooperative Purchasing Plan of the Educational Buyers Association" (*Bulletin of the Association of American Colleges,* Volume XXII, December 1936, p. 552) publicized the success of cooperative purchasing in the educational field. Several years later in an article in *The National Municipal Review,* "County Purchasing Methods Reviewed" (June 1940, pp. 388-395), Robert A. Martino pointed out the existing county purchasing methods and the failure of county laws to allow for county-municipal cooperation in purchasing.

In an article on "State-Municipal Cooperation in Purchasing" (*Nation-*

* In June 1956 Mr. Townsend received a master's degree in public administration from Cornell University's Graduate School of Business and Public Administration.

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In Oregon the Roadmaster for one county said: *"This Fitchburg Chipper has paid for itself twice over the first season."* Another chipper user on Washington State Highways reports that with a crew of three men they can clean up at least a half mile of heavy brush in six hours. A Missouri utility line clearance firm says: *"Our figures show that production has been increased by a good 25% with a Fitchburg Chipper."*

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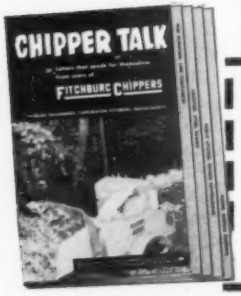

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al Municipal Review, September 1938, pp. 441-444), Stuart A. MacCorkle stressed the lack of adequate laws for cooperative purchasing in all but five of the states. In these five the laws were hazy and small community provincialism rendered the systems quite useless. In the following issue of the *National Municipal Review,* Charlton F. Chute, in an article on "Cooperative Purchasing in the United States and Canada" (October 1938, pp. 499-504), cited examples of successful cooperative municipal purchasing in both countries.

In 1952 another outstanding contribution was made to this body of literature when, under the guidance of the Haynes Foundation, Paul Beckett, George Pollak, and Morris Plotkin wrote *Governmental Purchasing, Series XI* of *Metropolitan Los Angeles—A Study in Integration* (Stamford: Los Angeles, 1952). This work includes a fine summary of purchasing practices in the 48 jurisdictions in Los Angeles County, and the status (1952) of cooperative purchasing throughout the country.

The Public Interest

The importance of safe-guarding the public's interest creates many problems that are unique to governmental purchasing. Public responsibility replaces profit as a guiding factor for the public purchaser. Let us view public responsibility from three approaches: standards and specifications; "local preference" and "responsible" bidders; and administrative surveys.

Standards and Specifications

The texts in industrial purchasing do a sound job of selling the need for adequate standards and specifications. However, several local purchasing articles in this field deserve mention. Don E. Trombly's article, "Buying Machines for City Departments" (THE AMERICAN CITY, August 1952, pp. 126-127), emphasizes that specifications must not favor one buyer, and that the stocking of repair parts should not be allowed if it forces the use of the same type of new equipment in the future. S. P. Kaidanovsky, in a series of articles in *The Magazine of Standards* (1955), presents documented case studies on the accomplishments of purchasing departments which have adopted adequate standards and specifications.

These two problem areas are native only to governmental purchas-

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	16 YD. "A"	20 YD. "B"	20 YD. "C"	20 YD. HYDEPAK	16 YD. "D"
NO. PICKUPS FIRST LOAD	215	382	250	485	252
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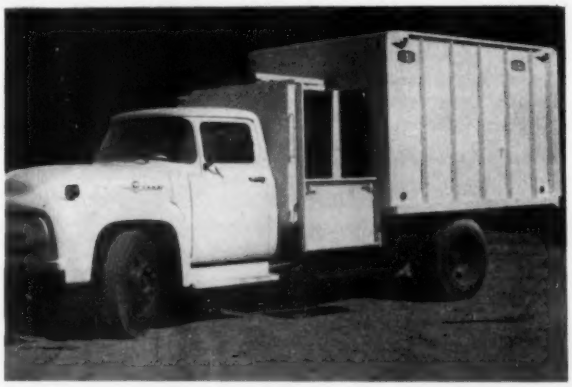

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Rock Salt . . . and Today's Roads

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt

3-Year Survey Shows Why Rock Salt Is "Best" for Ice, Snow Removal

Early this year, the Civic Affairs Committee of The Engineering Society of Detroit completed an exhaustive study—"The Use of Salt for De-Icing Streets." Over three years of intensive work by 14 outstanding engineers went into this study—which covered representative cities across the country. Their final report is now considered to be the most authoritative ever published on the subject.

Here are some of the highlights of this important report:

Public safety—and economics. According to studies made in Detroit, severe winter storms in this city could produce staggering financial losses. Employee lateness would cost $55 million a year . . . retail sales would drop $26 millior a year . . . trucking losses would be $7 million annually . . . and this does *not* take into account huge losses from accidents, damage, decreased factory output, etc.

However, the use of rock salt in Detroit for immediate removal of ice and snow *prevents* these losses from occurring. And at very little expense, compared to the economic benefits to the community. For these reasons, The Civic Affairs Committee concludes: ". . . use of rock salt is by far the best procedure, and is in the best public interest. . . . It is a 'modern' program geared to the problem of keeping an urban community operating in spite of adverse winter weather."

Effect of rock salt on cars. Studies were made in 12 different states in order to determine corrosive effects of rock salt on car bodies, bumpers, fender welts, etc. (The three major automotive manufacturers were represented on the Committee in this work.) According to the evidence collected, The Civic Affairs Committee states, "The enamels and lacquers used on autos today are relatively unaffected by salt used on the street to melt ice and snow. Only when the finish is broken in some manner, allowing the brine solution to reach the underlying steel, will corrosion start."

Corrosion inhibitors. The Civic Affairs Committee also investigated so-called corrosion inhibitors. Their findings indicated: ". . . the use of inhibitors in salt is of doubtful value in protecting the exterior appearance of autos." It was also reported that "inhibitors are unable to prevent corrosion of susceptible parts of autos."

Effect of rock salt on utilities and other structures. In this study, the Detroit Edison Co. and the Michigan Bell Telephone Co. presented evidence to show that the economic benefits of using rock salt far outweighed any effects it may have on their equipment. "In general . . . the problems of the electric utility are not measurably increased by use of salt in de-icing streets." Also, the effect of salt on telephone utilities "appears to be of a low order of magnitude and is readily handled by normal maintenance procedures."

As far as street or highway surfacing is concerned, these general observations were made: Rock salt does not harm black top (bituminous and asphalt), natural stone, and air-entrained cement surfaces.

FREE COPY of the complete Civic Affairs Committee report—"The Use of Salt for De-Icing Streets." A *must* for every official concerned with highway safety, traffic, maintenance—and practical economics. Fully documented, with graphs, charts, references. For your copy, write International Salt Co., Scranton 2, Pa.

STERLING SALT FOR ICE AND SNOW CONTROL

When you set up this winter's program for ice and snow control, be sure to check with International Salt Company —makers of famous Sterling Rock Salt. One of International's skilled and experienced "Salt Specialists" will help you set up an effective, low-cost program for *your* roads and streets. He'll show you actual examples of how Sterling Rock Salt has worked to speed removal of snow and ice. And he'll give you complete details on ordering, storing, and applying this quality salt product. Just contact your nearest International sales office.

JUST 7 MINUTES after Sterling Rock Salt was applied—this U.S. Highway is clear and open! Traffic is moving safely despite the snowfall. On this highway—as on many others—tests have shown that just one truckload of Sterling Rock Salt covers as long a stretch of road as five truckloads of abrasives. And with this rock salt, spring cleanup expense is eliminated.

IMPORTANT NEWS: Now you can store your rock salt outdoors—and still have it free-flowing when winter storms hit! A newly developed chemical agent, Sterling *Sterite*, actually prevents rock salt from caking. It eliminates the need for costly structures to protect salt from weather . . . permits economical early ordering. Amazing new *Sterite* is low in cost, easy to apply. Be sure to specify Sterling *Sterite* with your order of Sterling Rock Salt. It's available now—shipped in 50-lb. drums.

Sales Offices: Atlanta, Ga.; Chicago, Ill., New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Philadelphia, Pa.; Cleveland, O.; Pittsburgh, Pa.; and Richmond, Va

FOR ROADS, INDUSTRY, FARM, AND HOME—

STERLING SALT

PRODUCT OF INTERNATIONAL SALT CO., INC.

(Continued from page 184)

ing. Many jurisdictions require that a certain price differential be granted to local suppliers while other jurisdictions require that contracts be granted to the "lowest" bidder regardless of his nonprice qualifications. Most of the aforementioned authors refer to these two problems.

Of special interest is a book by Herman G. James, *The Protection of the Public Interests in Public Contracts* (Public Administration Service: Chicago, 1946). Chapters four, five, and six of this book, dealing with competitive bidding procedures, awards to successful bidders, and exceptions to requirements for competitive bidding, are especially helpful as Mr. James carefully tackles the legal and practical questions involved.

Recently in THE AMERICAN CITY, Irving Vichness wrote two articles entitled "Some Reasons Why in Public Buying" (January 1953, pp. 110-117) and "Lowest Responsible Bidder" (February 1953, pp. 116-117). In these two articles Mr. Vichness, an attorney, discusses the meaning of each segment of the phrase "lowest responsible bidder," establishes that the Council has wide discretion when it uses good faith and factual evidence, and considers the differences between legal and illegal restrictive specifications. These two articles are very valuable for a brief account of the legal rulings involved in the bid process.

Most administrative surveys at the local level are conducted by hired consultants. An example of such a survey is the *Report on an Administrative Survey of the City Government of Poughkeepsie, New York* (Public Administration Service, Chicago, 1950). However, self-analysis programs are of the utmost importance to the purchasing officer. An interesting article on such a program is Herman Limberg's "Analyzing Purchasing Management" (*Purchasing*, December 1951, pp. 97-100). This article consists of seven penetrating questions concerning purchasing activities.

Current Information

To keep informed of local purchasing news and activities the well read purchasing agent should receive at least the following periodicals: THE AMERICAN CITY, *Municipal Finance*, *The Municipal Yearbook*, *Public Management*, and *Purchasing*, and he should be a member of the National Institute of Governmental Purchasing.

Citizens Join in Capital Improvement Study

THE PEOPLE of Phoenix, Ariz., and their City Council are joining hands to develop a long-range program of capital improvements for their city. The program, to be financed by bond issues, will be submitted for voters' approval at a special election to be held next March. To get citizens' guidance in preparing the bond proposals the Council has asked that a large citizen committee be formed to study the needs of the city, review reports and make recommendations on specific projects. The committee which will represent labor, business and trade, professional, educational, cultural, and social service groups, as well as neighborhood improvement associations in Phoenix, will go into action next month.

In the meantime, capital improvement studies by local consulting engineers are already under way, covering such projects as the city water system, airport, and storm sewers and sanitary sewers.

GET THE INSIDE STORY
before you specify any hydrant!
Don't buy blindly! Only in IOWA hydrants do you get full measure of such practical advantages as: (1) absolutely *unobstructed* waterway; (2) all internal working parts removable through top; (3) no special tools needed for maintenance; (4) no binding or distortion, always easily opened; (5) no freezing; (6) meet all A.W.W.A. specifications; (7) bell, flange or mechanical joint connections fit any existing or planned installation; (8) replacement parts always available.
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Tax Billing Speed Doubled In New Rochelle, N. Y.

(Continued from page 119)

nals, at the same time that the roll was extended.

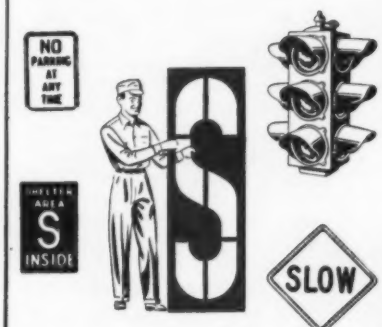
Examination of three different machines directed my attention especially to the simplicity and automatic features of the Underwood Sundstrand Tax Billing machine. The tax rate was set in the machine. By entering the assessed valuation on the 10-key keyboard and depressing a key the machine automatically computed the tax, adjusted to the half cent, and printed it on the tax roll. Without pause it split the tax into two installments and printed them in separate columns. Then the machine printed valuation, tax rate, total tax, and first half and second half tax amounts on the tax bills. Each page of the tax roll is totaled and proved automatically.

Obviously, this was the kind of operation we wanted. We purchased the Underwood Sundstrand machines and are following the above procedure today. By printing the assessed valuation and tax rate on the tax bill, it was possible to order the bill forms long before the rates were established. The forms could be Addressographed with taxpayer's name, address, property location, block and lot number, at any time in advance of the extensions.

The old method, using two machines and two machine operators, took 14 days to compute 13,209 tax extensions and prepare the tax bills on the city tax roll, and the same amount of time for the School District tax roll. The new method using two machines and two operators takes only eight days to compute and prepare 14,444 tax extensions and tax bills for each tax roll. With the new method we are able to make a vital time saving at a period of peak work load. These same machines post the tax payments. They also post daily cash book and the city's general ledger.

All from ONE Source!

SIGNS AND SUPPLIES for EVERY CITY



In addition to our huge stock of plain and reflectorized standard signs, we carry a complete stock of Traffic Control Equipment, including:

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Federal Community Planning Funds Used For School Study

COMMUNITIES with rapidly growing school populations may make use of federal planning funds to develop comprehensive school programs. The Urban Renewal Administration reports that Little Rock-Pulaski County metropolitan area in Arkansas will use an $18,600 federal grant for developing a community school program. The grant was awarded the Metropolitan Area Planning Commission of Pulaski County, Little Rock.

The project calls for the preparation of a six-year school development program and the coordination of school development plans with plans for parks and other recreational activities. It will include surveys of school population, analysis of methods of financing and studies of present school facilities as to type, location, and capacity. Final plans will be incorporated in the broader land-use plan developed earlier by the Planning Commission.

Estimated cost of the school planning project is $37,200, one-half of which will be met by the federal grant. The remainder will be financed by local contribution in cash or services from the Special School Districts of Little Rock, North Little Rock, and Pulaski County.

In recent years rapid population growth in the area has pointed to the urgency of a school development program.

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Don't let your tractors hibernate this winter — equip them with handy, low cost M-B Sweepers for *real year 'round use!* Ideal for fast snow removal from sidewalks, streets, parking lots, playgrounds, skating rinks. In heavy snow can be used as follow-up units with truck mounted plows, sweeping layer of snow that plows can't remove, reducing hazardous ice conditions.

Fit most popular tractors; 5′ and 6′ broom widths; easily removable for drawbar work; all season use; hydraulically operated broom lift to clear obstructions and curbs. Get the full story on economical and practical M-B Sweepers. Write today!

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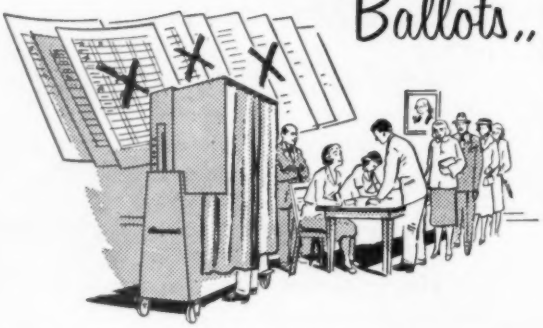
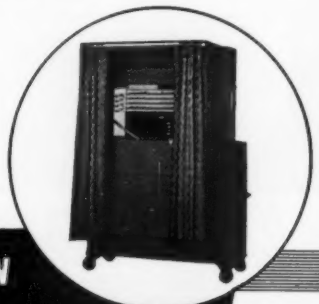


At each election, many PAPER BALLOTS are invalidated because of

1. Voting for more than the proper number of candidates.
2. Distinguishing marks which can be construed as identifying the ballot.
3. Erasures to correct mistakes.
4. Use of a pen instead of a pencil.
5. Failure to place cross mark fully within the voting square.

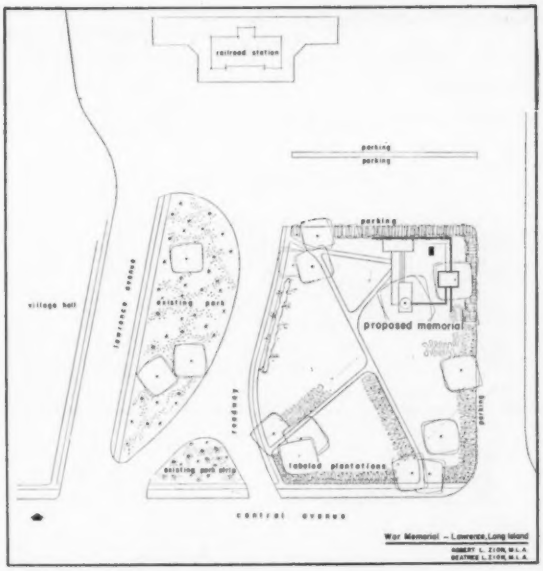


More than 6,500 cities and towns have found that these errors may be completely eliminated and every vote counted, through the installation of AUTOMATIC VOTING MACHINES.

AUTOMATIC VOTING MACHINE CORPORATION

JAMESTOWN, NEW YORK

The memorial proper is a sunken 50-foot by 70-foot plaza shaded by tall trees.



Award-winning Memorial Park, located adjacent to the village hall and railroad station, provides a decorative entrance to town.

War Memorial for a Town of 5,000

THE Village of Lawrence on Long Island near New York City has pioneered a new design in war memorials. This community's monument to its war dead is not a conventional, run-of-the-mill bronze plaque or stone column but consists of a restful area with an arboretum. The result is a pleasing landmark which not only honors Lawrence's heroes, but enhances the beauty of the village and is enjoyed by every resident as well.

Recipient of Award

Last year the Lawrence War Memorial received an award at the International Gold Medal Exhibition of the Architectural League of New York for its "originality, suitability and simple dignity." Landscape architects Robert L. Zion and Beatrice L. Zion of Port Washington, N. Y., were responsible for the design. But special credit is due the Lawrence Village Board who had voted unanimously for the Zion plan as "something alive and useful as a memorial to patriotic service."

The War Memorial was developed as a park area out of an unused and unattractive corner of a village property situated in the railroad station plaza of this commuter community. In this conspicuous position the property could be a greeting sign to every commuter to or from New York City.

The actual memorial area is a sunken 50-foot by 70-foot rectangle and is part of a larger design, which makes of the remaining area a small arboretum containing a variety of plants and blooms. The memorial rectangle features an inscription wall placed opposite the broad entrance steps. The all-inclusive inscription: "To Our Heroes"—meant for war heroes, past, present and future—is so placed as to command attention from every point within the area.

In designing the memorial as an area for commemoration of the dead and enjoyment by the living, the architects concentrated on three factors: dignity, esthetics, and low maintenance costs. All architectural and horticultural treatments had these ends in view. For instance, the memorial area stresses simplicity in design. The area is surrounded on three sides by a retaining wall of flagstone ends. This wall is of sitting height, thus dispensing the need for furniture. Paving is of bluestone flagging with grass joints, while the background area is formed by a whitewashed brick wall with a bluestone coping. This is backed by a screen of White Pine and Flowering Dodwood, which helps to wall off surrounding buildings from view. To add interest with water and sound, there is a narrow rectangular pool with a verticle jet at the foot of the inscription wall.

To provide the area with color, plant material in the arboretum is chosen for a good year-round appearance and a controlled succession of bloom in pink, yellow, and white. The bloom is at its height on Memorial Day.

Economy in upkeep is achieved by choosing groundcovers which preclude the necessity of weeding, while an emphasis on evergreens helps keep the area trim all year.

In addition, all plants in the arboretum will be labeled, thus providing the public with painless horticultural education.

Toward Continued Growth

Broad vision and imaginative planning have endowed Lawrence with a living monument and the Village wants to make sure that its war memorial will continue to grow. Present plans call for a new path system through the park. Trees and shrubs suitable to the soil and climatic conditions of the village will be planted in the remaining area of the park and a metal sculpture will eventually adorn the rectangle.

Topeka Gets Set for a Pool Expansion Program

(Continued from page 141)

that it will cost about $25,000 to operate the new swimming pool each season.

As an operating and programming agency the Recreation Commission supervises all activities in connection with the city's swimming pools. The Gage Park pool offers two types of programs. For commercial swimming the public pays a fee. The present charge is 30 cents for adults and 15 cents for children under 12. For swimming instructions, residents pay a registration fee of $1 and nonresidents, $2.25. No charge is made for use of the pool during instruction periods.

The bathhouse design permits use of a minimum operating staff. The swimmers' activities are isolated from the public after the ticket is purchased at the cashier's window. A regular staff for peak operation from the middle of June to the middle of August include 27 persons for approximately 13 hours' operation: They are one manager, two assistant managers, 8 basket checkers, two cashiers, four life guards, eight instructor guards, who also fill in as life guards; one night-custodian and guard; and one day-janitor.

Interracial Pool

Following the Supreme Court desegregation ruling, the new Gage Pool (as was the old) is open to swimmers of all races. The integrated swimming worked well and created no particular problem.

However, Topeka's officials are now faced with another problem: what to do with the hundreds of new swimmers created by the instruction program and the many hundreds more to come? The National Recreation Association's report divided the city into 19 recreation neighborhoods. One of the major recommendations calls for the construction of five new swimming pools to be distributed throughout the city in five community locations to replace the existing neighborhood pools. These pools, to be approximately 45 feet by 100 feet in size, would be combined with major community recreation building developments. Together they would provide Topeka with an additional 48,000 square feet of swimming pool area. It looks like Topeka will have to push ahead with its pool building program soon.

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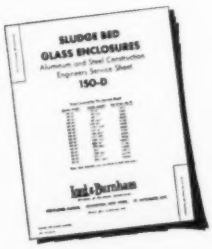

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City Manager Turns Poet

THE life of a city manager is a hard one. The hours of the days are filled with PROBLEMS—lots of them. You know, things like CAPITAL BUDGETS, CITY COUNCIL MEETINGS, and DOG LICENSING ORDINANCES. The last are the worst because PEOPLE GET EMOTIONAL about them.

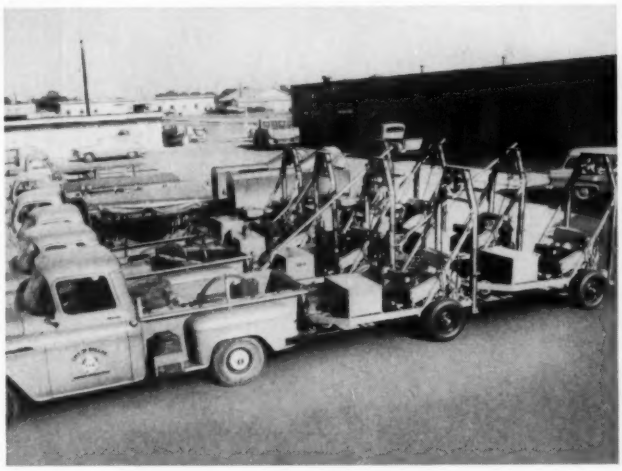
So managers have to GET AWAY from it all on VACATIONS. On rare occasions the prospect of a vacation turns a manager into a POET. It did recently for Ray Wilson, city manager of Phoenix, Ariz. He left this on top of his desk as he headed for the hills:

If you keep your nose to the grindstone rough,
And hold it down there long enough,
In time you'll say there's no such thing
As brooks that babble and birds that sing.
These three things will your world compose.
Just you, the stone and your bloody nose.

FORESIGHT and "FLEXIBLES" Pay Off in Dallas

Today the Dallas Sewer Maintenance Department has approximately the same number of men as in 1951, yet the population has grown 23.8% and the sewer cleaning problems proportionately.

The greatly increased cleaning capacity per worker can be credited to the foresight of Superintendent Henry Graeser. In 1951 he started a modernization program. Today the sewer crew is equipped with this mechanized fleet of "Flexible" Bucket Machines and SeweRodeRs.



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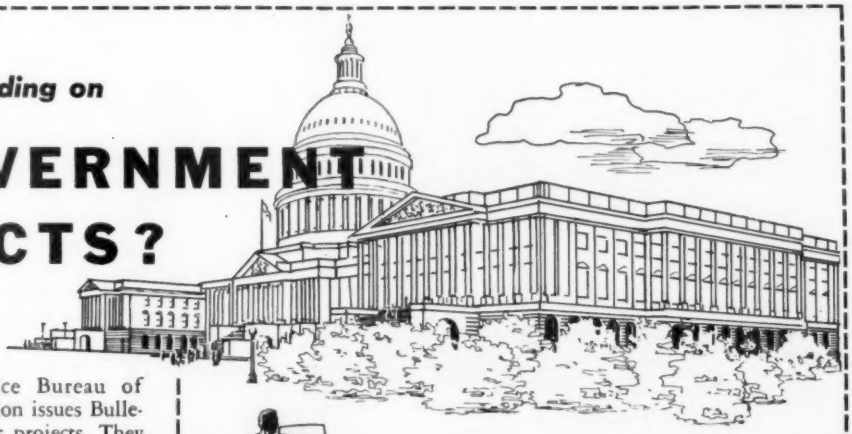

The Washington Service Bureau of National Surety Corporation issues Bulletins on U. S. Government projects. They tell who is issuing the invitations, where bids are being received and when they are being opened. To receive these bulletins, without obligation, write to either of the Central Bonding Offices listed below or to any of our Branch or Service Offices.

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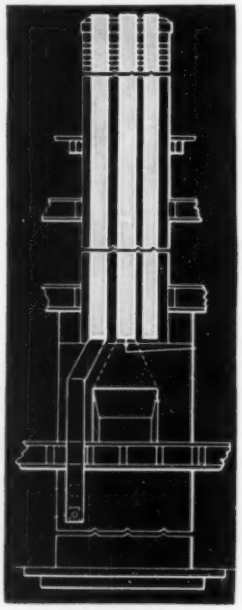

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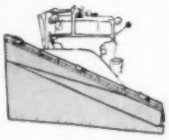

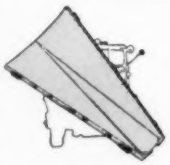

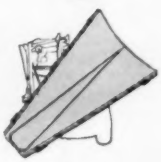

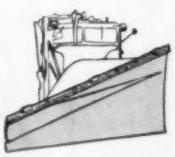

The Frink Taper Blade Roll-Over Sno-Plow combines the advantages of the reversible blade type with higher speed, deeper snow handling qualities of the one-way plow.

This plow throws and spreads the snow, yet can be hydraulically rotated from left hand to right hand plowing position in 15 seconds, enabling the operator to throw *all* the snow in the most favorable direction as dictated by the wind or the location of the disposal area.

Deadheading is eliminated, therefore, less equipment is needed. Parking is easier, because the truck can be parked with the Roll-Over in the upright position within its own width.

The Frink V-Type, One-Way Type, and Reversible Type Sno-Plows can all be attached to the Roll-Over Lifting Device Assembly.

FRINK SNO-PLOWS

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Snow Problems Are Less Trouble If You Have a Plan

By C. RANDOLPH LUKENS
City Manager
Fairborn, Ohio

FAIRBORN, Ohio, is by no stretch of the imagination a large city. It has a population of 14,000 and 42 miles of streets. Yet Fairborn streets need to be operating all the time, for a city lives and prospers as long as cars and trucks can travel its streets freely. Consequently, it is our responsibility as administrators to see that snow and ice do not cripple this economic life line.

Our program embraces four main steps: a warning plan; a snowplowing plan; an ice-control plan; and safety measures. In each case, crews have been trained so that the men know how the program works and what they should do under virtually every condition.

Warning Plan

The Police Department plays a key role in the warning plan. The police receive storm warnings from the weather bureau and the State Highway Patrol, and relay them to the superintendent of streets and to my office.

The superintendent of streets alerts city crews when the situation has developed sufficiently to warrant action. Generally, this alert comes when the snow has reached a depth of 2 inches and promises to continue.

Plowing Plan

When the snow reaches this critical depth, the street superintendent sends the plows into action and orders them to continue until the situation is brought under control. If the plows cannot handle the snow, the superintendent calls my office and we try to scout up additional snowplowing equipment, such as graders, bulldozers, or useful equipment we can borrow or rent.

We have two trucks that are equipped with reversible rigid-type plows. One is a Good Roads; the other, a Gledhill. Each has a detailed plowing itinerary arranged so that the heavily traveled streets are kept open all the time; the secondary streets are opened when the trucks have the opportunity.

We have a few wide streets with boulevard areas. Here we plow the snow to the outside and remove it at our leisure with our front-end loader as soon as it is available. We use a Ware loader mounted on an Oliver tractor. The trucks take the snow to designated vacant lots.

We plow to the outside curb rather than the center and let the cars park at the center island. People do not like to park at the outside when the street is slippery. The pronounced crown makes it difficult for the cars to back away from the curb.

When ice makes the streets hazardous the Police Department again takes the responsibility of notifying the street superintendent. We normally may expect nine or ten such icy sessions in a winter. The ice generally will form around 4:00 a.m., so the crews have to be on the streets by 5:00 a.m. in order to make the streets safe for the heavy traffic going to the nearby Air Force base. If the streets become icy during the day, trouble usually develops about 3 p.m. when the sun starts to set.

We use salt alone when the tem-

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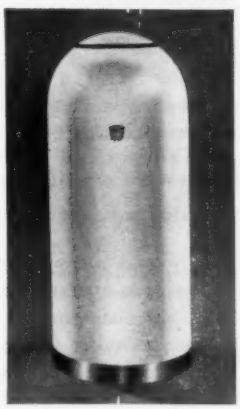

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perature is 15° F. or more, and mix salt with calcium chloride for colder temperatures. Cinders or sand may be used on slopes with either salt or calcium chloride. We have two Tarco "Scotchman" spreaders, one operated by the driver in his cab, and the other by a man in the truck bed. We distribute the salt at the rate of 500 pounds per mile.

Here again we have a definite priority system for the streets. Two trucks do the work and each is assigned its schedule of street and intersections to cover. Both trucks have mechanical spreaders.

Special safety measures refer to those taken for the good of the city, not for the good of the individual worker. The men are all trained in proper safety procedures. We take these special measures only during times of exceptional snows. During these periods, the Police Department provides emergency transportation to stranded motorists. It also clears the streets of stalled cars and maintains radio communications with surrounding areas.

We have a special crew that removes snow from the area around each fire hydrant in the business district. Another man checks the water pumping system. The fire chief also stations four or five men at the fire station as a safety precaution.

With this system, we are able to plow open every street in town reasonably fast, and completely clear our 1-mile business district. As a rule, we can expect around 20 inches of snow each winter, and five or six storms that require the plows to go out. With a detailed schedule, the men go out and the work proceeds easily. Since neither the weather nor the science of running a city is completely predictable, a slip-up sometimes occurs. But the plan enables us to hold these slip-ups to an absolute minimum, and gives the program itself snap and efficiency.

CORRECTION

In case you wondered about the cost while reading the Simplex Valve & Meter Company advertisement on Page 74, Simplex informed us, too late for correction, that the value of the new 50 MGD Water Purification Plant for the City of Houston, Texas, should be $5,000,000, not $1,000,000 as stated.

Soft Water for Centralia

EFFORTS on the part of the mayor and council of Centralia, Mo., along with a nudge from a committee of women, headed by the Sorosis Club, resulted in softer water for the citizenry.

The water is obtained from two deep wells, the one 1,125 feet deep and the other, 1,338 feet deep. The raw water contained 165 ppm (parts per million) of calcium hardness and 140 ppm of magnesium hardness, or a total hardness of 305 ppm. Consequently, numerous private water softeners were used throughout the city and the people, in general, were unhappy.

Today, Centralia operates a zeolite water softening plant and a new aerator. The hardness is reduced to about 85 ppm with no material change in taste. The city's 3,300 inhabitants not only enjoy the experience of having soft water, but have a clean, odorless drinking water as well.

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Edited by NORMAN WILLIAMS, JR.

Zoning & Planning Notes

Office-Building Buffer Zone

NEW JERSEY. *Raskin* v. *Town of Morristown*, 121 Atlantic (2d) 378 (Supreme Court, March 21, 1956).

In this case a small tract (consisting of 6 parcels) was rezoned to an "office building district," permitting office buildings but not general retail establishments. No other area in the town was so zoned. The surrounding area, along a main street leading out from the center of Morristown, had been the scene of substantial recent commercial development, including a Sears, Roebuck store and a supermarket—much of it as a result of a series of variances and small changes in the zoning maps. It appeared that this rezoning, restricting commercial development to office buildings, was at the instance of property owners on a residential street in the rear, in order to provide a buffer area of offices between residential and retail development. This rezoning was contrary to the provisions of a master plan prepared by consultants and approved by the planning board, which reserved the area in question for residential development. The New Jersey Court held, by a vote of 4 to 3, that the restricted rezoning was unreasonable, not in accordance with a comprehensive plan, and so unconstitutional.

The elaborate opinion contained a long discussion of the requirement of a comprehensive plan in connection with zoning.

> "But this conception does not comport with the constitutional and statutory principle of restricting to particular districts, and regulating therein, buildings and structures according to their construction and the nature and extent of their use, and the nature and extent of the uses of land, conformably to a comprehensive plan designed to serve the interests of health, safety, morals, or the general good and welfare. . . .
>
> "Plaintiffs' properties are situate in an area peculiarly suitable for general business, indeed their highest and best use when considered in the setting of their environment; and the restriction of the locus to office buildings would plainly constitute an undue curtailment of a natural use quite appropriate to the community's expanding business economy, not to serve an essential public need, but rather the particular interests of the residents of Hamilton Drive whose rear view might otherwise be marred by the 'delivery services, rubbish, boxes, etc. common to the rear of ordinary retail stores,' minor inconveniences and irritations, it would seem, bordering on the artistic and the esthetic, that are not beyond the reach of the police power by other less drastic means. . . .
>
> "There is no rational ground for denying to plaintiffs the business uses common to the adjacent properties in the enlarged business zone; and to do so would deprive plaintiffs of their private property without advancing the common good. . . .
>
> "And it is of the essence of zoning that there be a rational relation between the regulation and the service of the common well-being in an area of action within the range of the statutory policy. Excesses are forbidden. Undue discrimination in treatment and classification vitiates the regulation. . . .
>
> "The commercial uses in the area were ignored, although in the main the result of municipal action—a fait accompli. The breakdown in the residential privacy of Hamilton Drive had already set in. . . .
>
> "The virtue of a 'buffer' zone in these circumstances is not perceivable. And plaintiffs' properties are no longer in a section suitable for residential uses. . . .
>
> "It is in evidence that there is 'not very much' demand for 'office building sites in Morristown,' and it is unlikely 'it would be a paying investment.' In a word, the local legislative action was not taken with due regard to the character of the district and its peculiar suitability for particular uses. . . .
>
> "We do not proscribe the 'buffer zone' *eo nomine* under any and all circumstance."

Three judges dissented, but without writing a separate opinion.

Special Yard Requirements for College Dormitory

NEW YORK. *Application of La Porte*, 150 New York Supplement (2d) 467 (Supreme (lower) Court, February 23, 1956).

Under the New Rochele zoning ordinance, single-family dwellings may be built with 12- and 15-foot side yards and 30-foot rear yards, but all other uses in a residence district require 60 feet for both side and rear yards. In this case, Iona College proposed to build a dormitory for about 60 students from a religious order known as "Christian Brothers of Ireland"; and it was argued that such a structure should be regarded as a single-family residence and thus subject only to the lesser yard requirement. However, the Court held that the proposed dormitory was an accessory building for the main college building, and was therefore subject to the greater yard requirement.

Municipal Factory Construction

KENTUCKY. *Dyche* v. *City of London*, 288 South Western (2d) 648 (Court of Appeals, March 22, 1956).

In this case the City of London voted to approve a bond issue to finance construction of a factory, to be leased to private industry, in order to attract new industry and reduce the high level of unemployment. A declaratory-judgement action was brought to validate the bonds; and the Court held that

> "The validity of a project of this type, which closely approaches public aid to private industrial interests, depends entirely upon the existence of underlying economic conditions which render the project essentially one of a 'public' nature."

The Court held that in this case the record substantiated the existence of much unemployment, and so justified the bond issue.

Bulk Regulations—Extra-Territorial Zoning

NEBRASKA. *Peterson* v. *Vasak*, 76 North Western (2d) 420 (Supreme Court, April 20, 1956).

A 1925 law authorized the City of Omaha to regulate all buildings within three miles of the City limits, and the City passed an ordinance providing for such extra-territorial zoning. In this case, a triangular plot of land in such an area was left after the rest of a block was formally subdivided into lots. The area of this plot, about 13,600 square feet, was much less than that required (about ½ acre) for new development under the ordinance. The Court went into a long discussion on the requirements for frontage and for yards, and decided that, to enable some use to be made of the land, a certificate of occupancy should be granted for a single-family house, on the ground of hardship.

The Tavern on the Green Parking Lot

NEW YORK. *Freidberg* v. *City of New York*, 151 New York Supplement (2d) 258 (Supreme Court, May 2, 1956).

In this case, the Tavern on the Green, a restaurant located within Central Park in New York City, proposed to enlarge its 80-car parking lot to provide space for 80 more cars, along with an expansion of its facilities with a cocktail lounge. After considerable public controversy, neighboring residents brought a suit to restrain conversion of park land for the parking lot. While holding that a restaurant was a "legitimate incident to parking use," the Court granted a temporary injunction (later affirmed by the Appellate Division) against the proposed expansion of the parking lot. In the opinion, the court emphasized the long tradition of the inviolability of Central Park.

> "The Park Commissioner has always been assiduous in creating as well as preserving park area; but he would convert this plot into a parking lot. Perhaps the paradox arises because he has dealt in thousands of acres, and he regards—and treats—this half-acre as de minimis. But no foot, or even inch, of park space is expendable in our teeming metropolis.
> "I do not reach the question whether additional parking space (not even contiguous to the original parking lot) is an extension of the original licensed premises, for which no appropriate action has yet been taken. Nor, whether the proposed financing of the project is by lawful procedure. Nor whether the business as now conducted by the Tavern is no longer a proper incident of park use but essentially a commercial venture.
>
> "It is a sufficiently grave question whether a half-acre of park land, shrubbery, and trees—used by older children and immediately adjacent to a more formal playground for youngsters—may be sacrificed to a contemplated use of compounded dubiety, i.e., more parking space (for 80 more cars), for an enlarged cocktail lounge of a plush restaurant."

Zoning Briefs

Contributed by WILLIAM JABINE, Attorney

Arkansas

FILLING STATION BARRED IN ADVANCING RESIDENTIAL AREA. Permission denied for construction of filling station on lots outside fire limits. In reviewing particular situation, Court held that evidence showed site of proposed station was in an advancing residential district and not an area in retreat before the advance of commercial development, and so upheld denial of permit to construct station. Gammil v. City of Blytheville, 291 S. W. 2d 503. (Supreme Court, June 18, 1956).

Florida

ZONING RULES MUST FIX REASONABLE STANDARDS. Village council held to have no right to deny permission to construct filling station without first fixing proper standards. In decision commenting on early zoning decisions, Court said: "Arbitrary and unfettered authority to decide where and how a particular structure shall be built without setting up reasonable standards applicable to all is invalid." North Bay Village v. Blackwell, 88 So. 2d 524. (Supreme Court, Div. A, June 8, 1956, Rehearing denied, July 19, 1956).

Georgia

ORDINANCE GOOD ALTHOUGH PASSED WHILE APPLICATION WAS PENDING. Application made for construction of filling station. Area zoned as residential after application had been made. Ordinance held good and denial of application upheld despite fact that it was pending when ordinance was passed. Gay v. Mayor, etc., 93 S. E. 2d 352. (Supreme Court, May 14, 1956, Rehearing denied, June 14, 1956).

Indiana

YEARLY RENEWAL OF INTERIM ORDINANCE HELD INVALID. Planning Commission rezoned 77 lots from residential to business. Action challenged by property owner who claimed value of his land would be reduced by building of grocery warehouse and relied on interim ordinance repassed annually since 1946. Court held such yearly repassage of interim ordinance, except as part of master plan, invalid. K. G. Horton & Sons Inc. v. Board of Zoning Appeals, 135 N. E. 2d 243. (Supreme Court, June 13, 1956).

Iowa

SEPTIC TANK NOT PERMITTED. A zoning ordinance, plus an ordinance barring septic tanks when sewer was within reasonable distance, prevented Iowa Falls property owner from building residence on land partly covered by water. Court sustained validity of ordinance barring septic tank even though passed after original application had been made, but did not rule on question of whether portion of lot under water should be considered in figuring relation of size of yard to size of lot. State v. City of Iowa Falls, 74 N.W. 2d 594 (Supreme Court, Feb. 7, 1956).

Louisiana

CITY NOT COMPELLED TO FOLLOW RECOMMENDATIONS OF ZONING EXPERTS. Construction of underpass caused removal of furniture warehouse to new site which it was permitted to occupy until six months after underpass was completed. Relying on fact that report of zoning experts hired by city had recommended that new site be zoned as industrial, owners of warehouse continued to operate there after expiration of time limit although recommendation of experts was not followed and part of site was zoned as residential. Ordinance held good, as opinion of experts was only advisory. City of New Orleans v. La Nasa, 88 So. 2d 224. (Supreme Court, May 7, 1956, Rehearing denied, June 14, 1956).

Ohio

FISHERMEN AND HUNTERS KEEP PRIVILEGES. Area owned by railroad company included in residential zone by 1949 ordinance. Although, before and after that date, land has been used for hunting and fishing, defendant, a caretaker, selling permits for fishing was arrested for violation of zoning ordinance. Court held that caretaker who had been convicted in lower court should be released, as ordinance did not forbid use which had existed prior to enactment of ordinance and continually since. State v. Pierce, 132 N.E.2d 102 (Supreme Court, Feb. 1, 1956).

Rhode Island

CHURCH PERMITTED TO ENLARGE STRUCTURE. Church desired to add space for Sunday School without making major alteration to exterior of building. Zoning Board granted permission. Opponents sought writ of certiorari, and although not including it in petition, advanced argument in hearing that city council had improperly delegated powers to Board. Court refused to consider question as it had not been included in petition. Hopkins v. Zoning Board of Review, 123 A. 2d 253. (Supreme Court, June 14, 1956).

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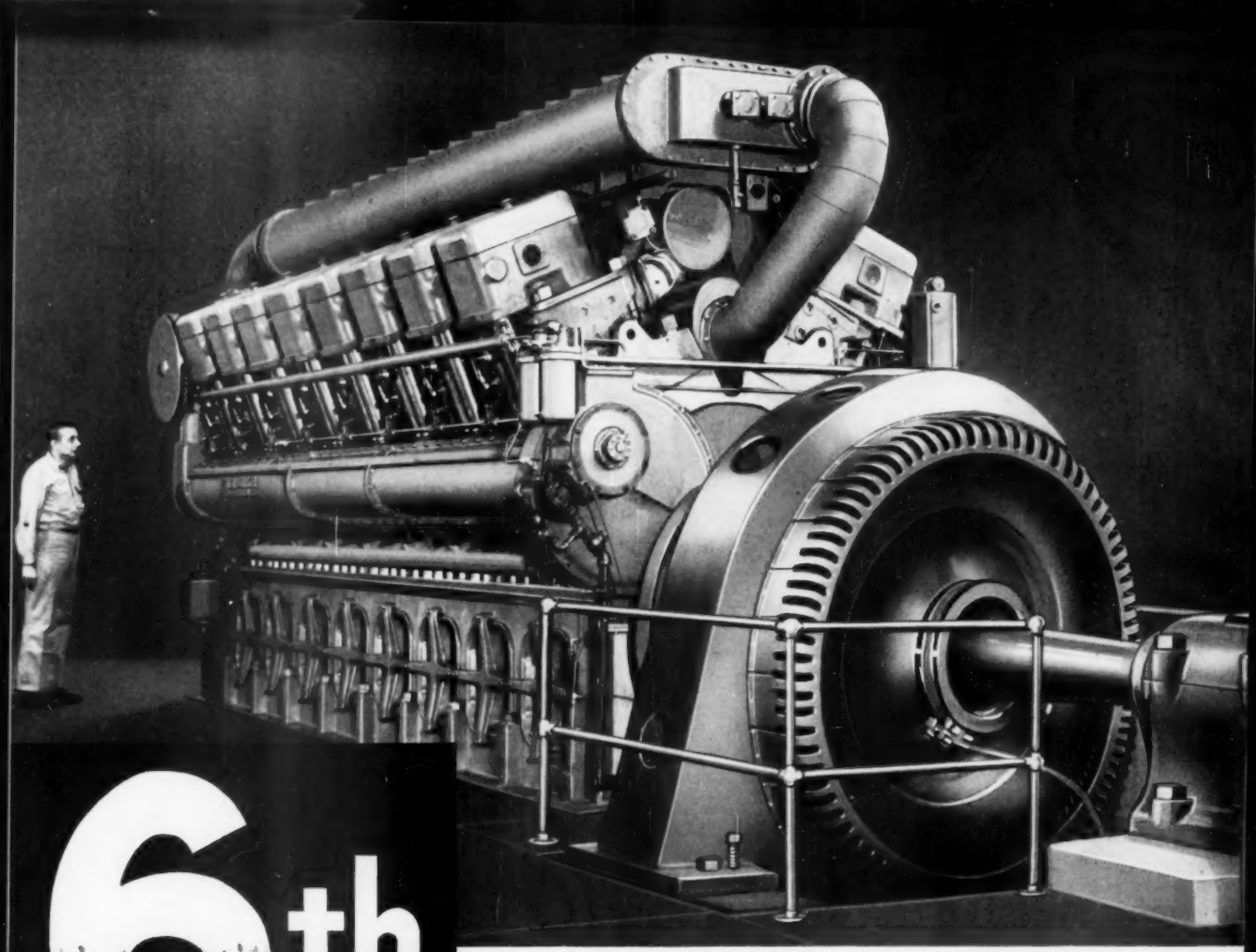

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P456

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Abandonment of Office—Fourteen Years of Inactivity Constitutes

Park District Commissioners of Cook County had forfeited their rights by abandonment where for fourteen years park property had not been acquired or developed, elections had not been held, taxes had not been levied, park purposes had not been pursued, and virtually no meetings in compliance with ordinance had been held. *People* v. *Herbster*, 129 N.E.2d 448 (Ill. App., Oct. 13, 1955).

Alley—Whether Adverse User Lost to City Question of Fact

Evidence raised a question of fact as to whether right to use dedicated alley was lost to city and public by continuous adverse user for period of more than 10 years before 1939 by building and renting a house which blocked the alley. *McGarber v. City of Corpus Christi*, 284 S.W.2d 142 (Tex., Oct. 12, 1955).

Building Lines—Set Back of Six Feet Proper, Estopped Against City Not Allowed

In action by property owners to prevent revocation of a building permit previously issued by the city authorizing erection of a building on a property line, held, that property owners had actual or constructive knowledge of a pending ordinance requiring that any building erected on property in that zone must be set back 6 feet from the property line, and doctrine of equitable estoppel could not be applied. *Saharrow* v. *City of Dania*, 83 So.2d 274 (Fla., Nov. 9, 1955).

Censorship—Obscene Films Seized Illegally

Where city charged owner of arcade and his employee with unlawfully exhibiting obscene, lewd and indecent motion pictures, held, films seized without a warrant or an arrest were unlawfully seized and were inadmissible. *City of Chicago* v. *Chertkoff*, 130 N.E.2d 504 (Ill., Nov. 30, 1955).

Charter Amendment—Ballot Must Contain Clear Statement of the Issue

In taxpayer's injunction suit against city to stop initiated charter amendment, held, the ballot title did not contain a clear, concise statement describing the substance of the proposed amendment as required by the city charter. *Howard* v. *City of Boulder*, 290 P.2d 237 (Colo., Oct. 17, 1955).

City Property Cannot Be Conveyed to Charitable Institution Without Proper Consideration

City had no power to convey to a private charitable foundation property which city owned in governmental capacity and which was concededly worth 32 times the monetary consideration to be received. *Gritton* v. *City of Des Moines*, 73 N.W.2d 813 (Iowa, Dec. 13, 1955).

Contracts—Rescission of Award to Low Bidder Invalid

Where City Council passed a resolution declaring a contractor to be the lowest bidder and awarding him the contract, the contract was completed and in absence of fraud, mistake or some other ground for rescission, the city was without power to rescind its action and award the contract to the second lowest bidder. *City of Susanville* v. *Lee C. Hess, Co.*, 290 P.2d 520 (Cal., Dec. 2, 1955).

De-Annexation—Evidence Supported Need for Future Development

In proceeding for exclusion of land from corporate limits of municipality, held, evidence required conclusion that much of excluded area was reasonably needed by city for future residential expansion. *Brooks* v. *City of South Sioux Falls*, 73 N. W. 2d 339. (S.D., Dec. 7, 1955).

Health Regulations—Closing Premises Until Remedied Not Abuse Of Discretion

In appeal from judgment granting preliminary injunstion requiring petitioner to cease and desist from using premises until health and zoning violation in City of New Orleans corrected, held, there was no abuse of discretion in refusing to grant a suspensive appeal and thus requiring the closing of premises or reduction of number of tenants, pending appeal. *Cantelli* v. *Hamlin*, 83 So.2d 563 (La., Nov. 21, 1955).

Hospitals—Removal of Doctor From Staff Valid

Qualified physician could not be arbitrarily denied use of facilities of City Hospital for treatment of his own patients but could be removed from hospital staff attending assigned patients. *Alpert* v. *Board of Governors of City Hospital of Fulton*, 145 N.Y.S.2d 534 (Sup.Ct. App. Div. 4th. Dept., Nov. 2, 1955).

Insurance—Competitive Bidding Not Required to Purchase

Provision of City Charter of Mechanicville requiring competitive bidding did not apply to the placing of public liability insurance policy for the city. *Lynd* v. *Heffernan*, 146 N.Y.S.2d 113 (Sup.Ct. App.Div. 3rd.Dept., Nov. 16, 1955).

Interference with Official Police Duties, Conviction Sustained

Evidence was sufficient to sustain conviction for violating a city ordinance prohibiting interference with police officers in their official duties. *City of Clovis* v. *Archie*, 290 P.2d 1075 (N.M., Dec. 13, 1955).

Motorcycle and Bicycle—Ordinance Requiring Seats for all Riders for Public Good

Traffic ordinance of City of Lynchburg providing that it shall be unlawful for owner of motorcycle or bicycle to transport thereon more persons than for which seats were securely attached or for anyon to ride on such a vehicle, was intended to remove the danger incident to the operation of overloaded motorcycles and bicycles and afford protection to the public. *Gough* v. *Shaner*, 90 S.E.2d 171 (a., Nov. 28, 1955).

Natural Gas—Approval by State Commission of Escalator Clause Valid

State Commission had authority to approve an escalator clause, or purchased gas adjustment provision, as an addition to filed and approved schedules of rates for gas distributor despite city's opposition. *City of Norfolk* v. *Virginia Electric and Power Company*, 90 S.E.2d 140 (Va., Nov. 28, 1955).

Platform—Fall Causing Injuries, City Liable

In action against the city for personal injuries sustained when the plaintiff fell on a platform which was maintained by the city in a broken condition, held, evidence sustained the verdict of $12,680.50. *Schafranek* v. *City of New York*, 146 N.Y.S.2d 658 (Sup.Ct., App.Div., 1st.Dept., Dec. 13, 1955).

Policeman Can Be Discharged While Under Suspension

Even though city policeman was on suspension and was still not completely separated from the police force, city had a right to discharge him for drunkenness prior to end of suspension period. *Mayor of Newton* v. *Civil Service Commission*, 130 N.E.2d 690 (Mass., Dec. 8, 1955).

Public Utilities—Nonresidents May Not Demand Service or Protest Rates

Where city had power to extend its electric lines and water main beyond its corporate limits and to supply nonresidents, city was not required to do so, and nonresidents did not have legal right to demand such service and could not complain of rates. *City of Moultrie* v. *Burgess*, 90 S.E.2d 1, (Ga., Oct. 13, 1955).

Streets—Dead End, Owners Abutting Unobstructed Portion Entitled to Nominal Damages

Where street was closed thereby producing a dead end street with access only in one direction, owner of property froning on the unobstructed portion of the street was entitled to only nominal damages. *In Re East 5th St., Borough of Manhattan*, 146 N.Y.S.2d 795 (Sup.Ct. Sp.-Term, N. Y. City, Nov. 3, 1955).

Tax Exemption for Girl Scout Camp Upheld

Voluntary corporation conducting a girls' boarding camp where the Girl Scout program was carried out without profit was a "public charity" entitled to a tax exemption even though nonresidents of state primarily use camp. *Great Lowell Girl Scout Council* v. *Town of Pelham*, 117 A.2d 325 (N.H., Oct. 24, 1955).

Water—Damage Not Due to Municipal Brook Improvements

Where municipalities improved banks of brook and allegedly the increased flow of water damaged plaintiff's property, held, evidence sustained finding that damage resulted from plaintiff's act of removing dam and other obstructions in stream. *Kidde Manufacturing Co.* v. *Town of Bloomfield and Borough of Glen Ridge*, 118 A.2d 535 (N. J., Nov. 21, 1955).

Applying Recordak Microfilming to government routines

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General view of the plant. Inset, closeup of Bar Screen and Disintegrator.
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Recent City Manager Appointments

Leo J. Morency
Rumford, Maine

Harold J. Hilliard, Sr.
Lodi, N. J.

Irving H. Beck
Newport, R. I.

Eugene G. Moody
Bloomington, Ill.

Sinclair Powell
Ypsilanti, Mich.

EUGENE AIELLO, city manager of Trinidad, Colo., is the new manager of South San Francisco, Calif., succeeding Emmons McClung.

IRVING H. BECK, public administration advisor, has been appointed city manager of Newport, R. I.

Succeeding Rodney L. Loomis as city manager of West Hartford, Conn., is DONALD H. BLATT, city manager at Quincy, Mass.

Succeeding E. J. Quillen as city manager of Johnson City, Tenn., is D. A. BURKHALTER, city manager of Elizabethton, Tenn.

WILLIAM H. CUNNINGHAM, city manager of Placentia, Calif., is the first manager of Rialto, Calif.

RICHARD W. EMERICK, administrative aide, Arlington Co., was appointed first manager at Clarkesville, Va.

Hart, Mich., has appointed HOWARD GWINNUP, city manager of Whitehall, Mich., as its city manager.

WALTER HAHN, JR., city manager of Monterey, Calif., has been appointed administrative officer of Inglewood, Calif., succeeding F. R. Coop.

The first manager of Lodi Borough, N. J., is HAROLD J. HILLIARD, SR., executive secretary of Tacoma Park, Md.

CLARENCE E. JOHNSON, finance director of Hampton, Va., was appointed city manager of that city, succeeding William S. Coburn.

Succeeding Karl G. Williams as city manager of Madison, S. D., is RALPH R. JOHNSON, manager of LaCrosse, Kans.

JOHN M. KATZBAN, assistant city manager of Whitefish Bay, Wis., has been appointed manager, succeeding Ralph H. Cahill.

Altavista, Va., has appointed R. C. KLEPPER, Virginia State Highway patrolman, to succeed R. J. Rountree, Jr., as city manager.

OTTO KLUMPP, superintendent of recreation in Greenwich, Conn., has recently been appointed administrative officer in that city.

The new manager of Key West, Fla., is FRED R. LANE, city manager of Tarpon Springs, succeeding officer Victor A. Lang.

BENJAMIN H. MEAD, city manager of Laguna Beach, Calif., was recently appointed city manager of Ellensburg, Wash., succeeding Jim Bailey.

The manager of Fremont, Mich., EUGENE G. MOODY, will succeed Elmer R. Cross as city manager of Bloomington, Ill.

LEO J. MORENCY, manager of Mexico, Maine, has been appointed to succeed Fred I. Howard as city manager of Rumford, Maine.

SINCLAIR POWELL, manager of Oakmont, Pa., has been appointed city manager of Ypsilanti, Mich.

El Segundo, Calif., has appointed JOHN J. SAILORS, manager of Newport Beach, Calif., to succeed Earl E. Udall.

Succeeding Morgan White as city manager of Killeen, Texas, is JOHN J. SARRIS, manager of Cameron, Mo.

James O. Tennant, manager of Farmington, Mich., will be succeeded by EARL F. SCHERFFIUS, assistant manager, Port Huron, Mich.

C. DEAN SMITH, a consulting engineer, has been appointed city manager of Sutherlin, Ore., succeeding Hugh McKinley.

Rosebud, Texas, has appointed LOUIS J. SMITZES, department head of water office at Irving, Texas, city manager to succeed Lee S. Vickers.

Succeeding Robert E. Sharp as city manager of Kodiak, Alaska, is CHARLES A. TRUITT, a construction engineer in the public works department at Kodiak.

DOUGLAS G. WEIFORD, former manager of South Boston, Va., has been appointed city manager of Eau Claire, Wis., succeeding David D. Rowlands.

The first city manager of Port Lavaca, Texas, is MORGAN WHITE, city manager of Killeen, Texas.

ORIN F. NOLTING
Executive Director
International City Managers' Association

Charles A. Truitt
Kodiak, Alaska

Earl F. Scherffius
Farmington, Mich.

John J. Sailors
El Segundo, Calif.

Donald H. Blatt
West Hartford, Conn.

Richard Emerick
Clarksville, Va.

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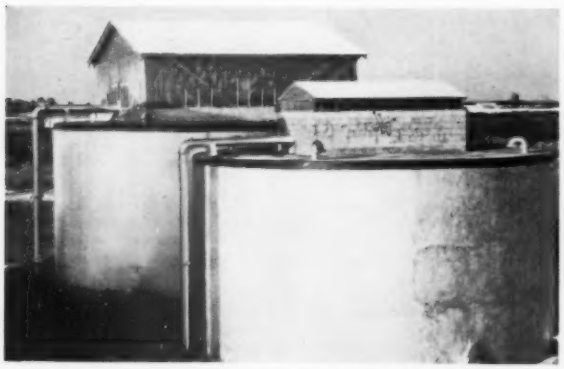
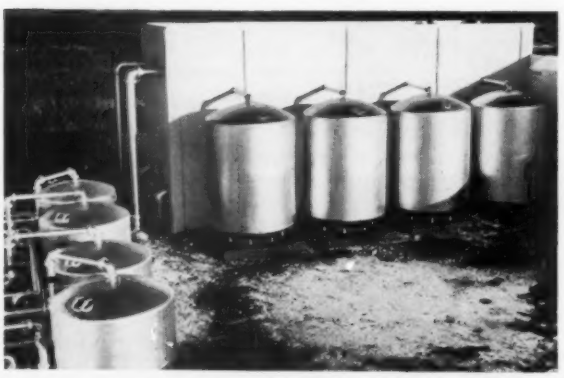
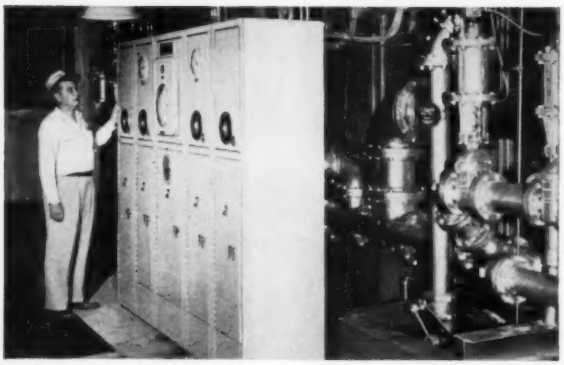
1. Pumps draw sea water from wells beneath this station. Being inland, these wells deliver a partially filtered sea water. (Regenerating costs are now $25 less per million gallons than when dry salt was used.)



2. To prevent marine growths which would foul equipment, the sea water is aerated and chlorinated.



3. Sea water then passes through Permutit pressure filters (left) and is ready for regenerating the Permutit softeners (right). Sea water pumpage is kept to a minimum because high-capacity Permutit Q, used in the softeners, requires less salt for regeneration.



4. City Engineer George A. Gieseke inspects the Permutit control panel. It backwashes, regenerates and rinses the 4 newest softeners and places them on the line . . . *all without aid from the plant operator!* Two men per shift operate the entire water plant.

5. Hollywood is growing fast. Their first four Permutit softeners went on the line twenty years ago. Now there are 12 . . . and plant space for more. "We're in good shape," says City Engineer Gieseke.

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PERMUTIT®

Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Oct. 4-5—Des Moines, Iowa
League of Iowa Municipalities. Annual Convention (Hotel Fort Des Moines). Exec. Sec., Max A. Conrad, 409 Tama Bldg., Burlington, Iowa.

Oct. 7-11—Washington, D. C.
Association of School Business Officials of the United States and Canada. Annual Convention (Sheraton-Park Hotel). Exec. Sec., Dr. Charles W. Foster, Business Officials of the U. S. and Canada, 1010 Church St., Evanston, Ill.

Oct. 8-10—Omaha, Nebr.
National Institute of Municipal Law Officers. Annual Meeting (Fontennelle Hotel). Gen. Consul, Charles S. Rhyne, 726 Jackson Pl. NW., Washington 6, D. C.

Oct. 8-11—Los Angeles, Calif.
Federation of Sewage and Industrial Wastes Associations. Annual Convention (Hotel Statler). Exec. Sec.—Editor, Ralph E. Fuhrman, 4435 Wisconsin Ave. NW., Washington, D. C.

Oct. 9-12—Atlanta, Ga.
United States Civil Defense Council. Annual Conference (Biltmore Hotel). Sec.—Exhibit Mgr., George F. Arnold, 181 S. Washington Blvd., Columbus, Ohio.

Oct. 9-12—Atlantic City, N. J.
Pennsylvania Water Works Association. Annual Meeting (Chalfonte Hotel). Sec., David Dunlap, 2609 N. Second St., Harrisburg, Pa.

Oct. 14-17—Chicago, Ill.
National Institute of Governmental Purchasing. Annual Conference and Products Exhibit (Hotel Conrad Hilton). Exec. Vice-Pres., Albert H. Hall, 1001 Connecticut Ave., Washington 6, D. C.

Oct. 14-17—Little Rock, Ark.
American Water Works Association—Southwest Section. Annual Meeting (Marion Hotel). Sec., Leslie A. Jackson, Robinson Memorial Auditorium, Little Rock, Ark.

Oct. 15-16—St. John, New Brunswick
American Water Works Association—Canadian Section, Maritime Branch. Annual Meeting (Admiral Beatty Hotel). Sec., J. D. Kline, c/o Public Service Commission of Halifax, P. O. Box 608, Halifax, Nova Scotia.

Oct. 15-17—Rye, N. Y.
Governmental Research Association. Annual Conference (Westchester Country Club). Sec., Elsie V. Haas, 684 Park Ave., New York 21, N. Y.

Oct. 18-19—Green Bay, Wis.
League of Wisconsin Municipalities. Annual Convention (Hotel Northland). Exec. Sec., Ed Johnson, 30 East Johnson St., Madison 3, Wis.

Oct. 18-20—Atlantic City, N. J.
American Water Works Association—New Jersey Section. Annual Meeting (Hotel Madison). Sec., C. B. Tygert, Wallace & Tiernan Inc., Box 178, Newark 1, N. J.

Oct. 21-23—Wichita, Kans.
Kansas Association of Municipal Utilities. Annual Convention (Broadview Hotel). Asst. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kans.

Oct. 21-23—Asheville, N. C.
League of North Carolina Municipalities. Annual Convention (George Vanderbilt Hotel). Exec. Dir., Mrs. Davetta L. Steed, 1009 Raleigh Bldg., Raleigh, N. C.

Oct. 21-24—Mobile, Ala.
American Water Works Association—Alabama-Mississippi Section. Annual Meeting (Battle House). Exec. Sec., Irving E. Anderson, District Engineer, U.S.G.S., P. O. Box 2052, Jackson, Miss.

Oct. 22-24—Atlanta, Ga.
Georgia Municipal Association. Annual Convention (Dinkler-Plaza). Sec., Zach Arnold, 1403 C&S National Bank Bldg., Atlanta, Ga.

Oct. 22-24—New York, N. Y.
National Association of Housing and Redevelopment Officials. Annual Convention (Hotel Statler). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

Oct. 23-26—San Diego, Calif.
American Water Works Association—California Section. Annual Meeting (U. S. Grant Hotel). Sec., H. J. Ongerth, Engineer, State Department of Health, 2180 Milvia St., Berkeley, Calif.

Oct. 24-26—Baltimore, Md.
American Water Works Association—Chesapeake Section. Annual Meeting (Sheraton Belvedere). Sec., C. J. Lauter, 6955 33rd St. NW., Washington 15, D. C.

Oct. 24-26—Des Moines, Iowa
American Water Works Association—Iowa Section. Annual Meeting (Hotel Fort Des Moines). Sec., J. J. Hall, Superintendent of the Water Department, City Hall, Dubuque, Iowa.

Oct. 25-27—Lubbock, Texas
League of Texas Municipalities. Annual Convention (Lubbock Hotel). Exec. Dir., E. E. McAdams, 105 W. 14th St., Austin 1, Texas.

(Continued on page 219)

TEXAS solves BIG TRASH PROBLEM with HIAB hydraulic TRUCK CRANES

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Right-hand wing—
has full range of positions with independent hydraulic control from the cab. Rugged, rigid construction with heavy box-frame reinforcing on back of moldboard.

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HYDRAULIC "V" SNOWPLOW—
has advantages of larger plows. Big 8-ft "V" width blade rolls, lifts and carries snow away. Three-point suspension permits following road crown.

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stockpiles snow or loads it into trucks a yard at a time. Hydraulically controlled from grader cab. One cu-yd bucket.

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Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

Analyzes Industrial Patterns in American Cities

THE INDUSTRIAL STRUCTURE OF AMERICAN CITIES—*By Gunnar Alexandersson. University of Nebraska Press,* 1125 *R. St., Lincoln* 8, *Nebr.* 1956. 134 *pp.* $6.50.

This book will appeal primarily to officials who deal with industrial growth in their cities and towns—i.e., city planners, industrial development commissioners, city managers, etc.

The book does two things: First, it analyzes the geographic locations of all industries in the country. Thus the reader can get a clear pictorial view of the distribution throughout the United States of such manufacturing industries as electrical machinery, textiles, chemicals, etc., as well as such service industries as finance, education, and professional and related services.

Secondly, the book analyzes the industrial structure of 864 cities in the country having populations of 10,000 persons or more. These analyses classify the various communities according to their function. This is determined by calculations involving the gainfully employed population in local industries. The industrial structure analyses of the 864 cities also shows the ratio of manufacturing or "city forming industry to secondary or city serving production."

The book appears to be a valuable addition to the literature of economic geography.

Helpful Suggestions on Local Industrial Development

HOW TO GET AND KEEP INDUSTRY—*Report* 3180, *Bureau of Municipal Information, New York State Conference of Mayors,* 6 *Elk St., Albany* 7, *N. Y.* 1956. 30 *pp.* $1.

Municipalities will be able to get some practical guidance on industrial betterment from this collection of articles issued by the New York State Conference of Mayors. In this series, which originally appeared in the February 1956 issue of *Public Management*, city managers tell how their individual city works to preserve old industry and attract new ones. The articles include The City's Role in Industrial Development, Surveying Industrial Potential, Retention of Existing Industry, Impact of New Industry, The One Industry Community. The series also include an article on Cities and Industrial Development, which originally appeared in the March 1956 issue of *Public Management*. It documents the different approaches used by communities in setting up industrial development agencies.

Salary Data for New York Municipalities

Data Gathered by the New York State Conference of Mayors, Bureau of Municipal Information, 6 *Elk St., Albany* 7, *N. Y. Available at* $1 *each report.* $5 *for the complete set.*

This series of reports, recently issued by the New York State Conference of Mayors, provides salary data for municipal jobs in cities and towns in New York State. Information covers city physicians, finance officials, clerks, secretaries, public health and public works employees, etc.

Improving Local-State Tax Relationships

STATEMENT OF THE SUB-COMMITTEE ON MUNICIPAL TAXATION AND FINANCE OF THE LEGISLATIVE COMMITTEE OF THE LEAGUE OF VIRGINIA MUNICIPALITIES TO THE STATE TAX STUDY COMMISSION—*League of Virginia Municipalities,* 905 *Travelers Bldg., Richmond* 19, *Va.* 1956. 15 *pp.*

Like other municipalities in other parts of the country Virginia cities and towns are handicapped by inadequate state assistance for joint state-local governmental programs; a backlog of capital improvement projects and state restrictions on local taxing power. The recommendations contained in this study offers some sound suggestions for improving state-local relation in tax matters.

Regional Library Planning in Philadelphia

A REGIONAL LIBRARY SYSTEM FOR PHILADELPHIA—*The Free Library of Philadelphia, Logan Square, Philadelphia, Pa.* 1956. 16 *pp.*

Library service like other municipal functions is becoming more and more a metropolitan problem. To meet the new library needs caused by population shift and the physical and economic growth of Philadelphia, the city's library authority has proposed a regional library program for the present free library system. This illustrated report outlined the proposed plan, which would permit "efficient, intelligent planning for the next fifty years." Described as "a contemporay pattern of library service", the regional pattern calls for an integrated system of a new mid-city library and five new regional libraries to be linked up with the existing free library service.

Advances Knowledge of Forces Forming Land Use Patterns

THE CORE OF THE CITY—*By John Rannells. Institute for Urban Land Use and Housing Studies, Columbia University. Columbia University Press,* 2960 *Broadway, New York* 27, *New York.* 1956. 237 *pp.* $5.50.

Mr. Rannells' highly technical study does two things: It provides a methodology for studying the forces that produce the land use patterns that exist in the cores of today's major cities. Mr. Rannells sees these patterns as dynamic things that are in a constant state of change. This change comes about as land use establishments try to attain physical relationships among each other that will provide a maximum efficiency from a functional and economic point of view.

Secondly, Mr. Rannells' study advances the present understanding of the forces that must be manipulated when cities and towns try to plan their future physical patterns. The insight into these forces that Mr. Rannells has gained in his study enables him at the conclusion to say: "The coming pattern of urbanization appears to be one dominated by a network of strong concentrations tied together by transportation lines, not the general suburban sprawl that was formerly predicted. The freedom to locate at will (brought about by motor transport) is still strongly governed by efficiencies due to nucleation of activities."

Source Book on Local Government

AMERICAN LOCAL GOVERNMENT AND ADMINISTRATION—*By Harold F. Alderfer, The MacMillan Company,* 60 *Fifth Ave., New York* 11, *N. Y.* 1956. 662 *pp.* $5.90.

Mr. Alderfer has written a modern, comprehensive and well-organized volume describing the entire field of American local government and administration. It covers not only urban and municipal local units but also counties, townships, school districts and special districts. The author has made good use of new data available in the municipal field, particularly material released by the Federal Commission on Intergovernmental Relations. The author also gives emphasis to illustrative material of recent date, including bibliography.

The book examines the units and form of American local government, its powers, functions, administrative techniques and services. Considerable attention has been devoted to federal-local and state-local relationships, especially as they have developed since World War II. Though primarily intended to be a textbook, the volume stands as a reliable, up-to-date source for general information on American local government.

Property Tax Administration in Illinois and Michigan

A COMPARATIVE STUDY OF PROPERTY TAX ADMINISTRATION IN ILLINOIS AND MICHIGAN—*By Robert H. Pealy. Michigan Governmental Studies No.* 33. *Bureau of Government, Institute of Public Administration, University of Michigan.* 1956. 128 *pp.* $3. *Order from Publications Distribution Service, University of Michigan,* 412 *Maynard St., Ann Arbor, Mich.*

Illinois and Michigan property tax administrative systems are compared and evaluated in this study for the purpose of finding new solutions to Michigan property tax problems. Primary emphasis is placed on administrative policy, structure and procedure rather than on methods of assessment. Hence the chief concern here is administrative problems rather than techniques of assessing property.

The study contains descriptions of the basic organizational structure of state property tax agencies, their fundamental powers and duties. It examines the organization for property tax administration at the local level in the two states, the impact of county and state equalization on local assessment, and the effect of state equalization on county equalization. Characteristics of the Illinois and Michigan systems are also compared with those of other systems in the United States.

Why a Small City Should Start Planning

FORT SMITH REPORT: PAST, PRESENT, FUTURE—*City Planning Division, University of Arkansas, Fayetteville, Ark.* 1956. 40 *pp.*

This report presents an analysis of the factors causing this community of 56,000 persons to grow. Estimates of future growth are discussed as are recommendations that the city undertake a full-scale planning program calling for a future land use plan, a master street plan, zoning ordinance, subdivision regulations, etc.

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Solving the Parking Problem with the Businessman's Approach

PARKING: A BUSINESSMAN'S APPROACH—*Transportation and Communication Department, Chamber of Commerce of the U.S.A., Washington, D. C.* 1956. 24 *pp.* 40 *cents per copy;* 3 *for* $1.

This booklet outlines the business approach to solving the parking problem. Its main argument is that parking is a service which must be paid for and, given the proper conditions, businessmen can solve the problem.

Its suggestions for business district parking are: (1) enforcement of proper time limits on both metered and unmetered space and the use of progressive rate schedules instead of fixed charges in carparks and garages to encourage short-time parking; (2) dressing up carparks and garages to attract motorists, and (3) educating parkers about available space.

Complete Book on Foundations

FOUNDATIONS DESIGN AND PRACTICE — *By Elwyn E. Seelye, Published by John Wiley & Sons, Inc., New York, N. Y.* 1956. $16.

A one-volume edition providing complete and up-to-date information on all phases of foundation work. The subject of cathodic protection for steel structures in salt water is covered for the first time in any foundation's book. The book also covers such subjects as subsurface exploration, inspection, foundation reports, specifications, estimates, contracts, and design.

The section on economic studies includes field problems and field methods to give the engineer a better understanding of problems encountered in the field, thereby enabling him to make a more economical and sound selection as to the type of foundation most suitable in each case.

The book is intended for the practicing designing engineer, the builder, the inspector, and the architect, as well as the teacher and the student.

Traffic Study for Northern Westchester County, N. Y.

PRELIMINARY PLAN FOR MAJOR THOROUGHFARES IN NORTHERN WESTCHESTER—*Westchester County Department of Planning, 910 County Office Bldg., White Plains, N. Y.* 1956. 37 *pp. A few copies available upon request.*

The Westchester County Department of Planning has issued this significant planning report describing an area approach to the problem of traffic planning. Among other things, this report points out that by proper planning, "today's development will not be disturbed by tomorrow's traffic."

This preliminary plan outlines a "basic" thoroughfare system for 18 municipalities and has for its purpose: (1) to protect the neighborhoods against disruption by unexpected highway proposals, and (2) to advise the municipalities to secure the necessary lands thus protecting the public from paying the heavy cost of smashing needed thoroughfares through built-up areas in the future. The plan recommends 137 miles of new or improved major routes involving some 7,000 acres of land. The report describes in detail the proposed thoroughfares and includes a map showing their general location.

Seattle Population Study

CENTERS OF POPULATION FOR THE SEATTLE AREA: 1900-1955 — *Current Publication No. 18, Current Planning Research, City Planning Commission, City of Seattle, 503 County-City Bldg., Seattle 4, Wash.* 1956. 4 *pp., maps.*

This study of population moves in the Seattle area will be especially helpful to any officials studying the changing centers of population of their own cities as a means of determining local development trends. The report includes a series of population spot maps showing the changing pattern of population density and distribution for the Seattle area. Centers of population are computed by ten-year intervals from 1900 to 1950 and for 1955 for both the City of Seattle and suburbs.

Community Facilities Administration Information Booklet

PROGRAMS OF THE COMMUNITY FACILITIES ADMINISTRATION — *Community Facilities Administration, Housing and Home Finance Agency, Washington 25, D. C.* 1956. 15 *pp.* 15 *cents. Copies available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

As one of the five constituents of the Housing and Home Finance Agency, the Community Facilities Administration is concerned with three types of community programs: federal loans for public works planning, college housing loans, and public facility loans. This booklet describes the administration's operation and the main provisions of its programs.

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Trends in the Market for Municipal Bonds

PRESENT CONDITION AND PROSPECTS OF THE MARKET FOR MUNICIPAL BONDS — *By Cushman McGee. Municipal Finance Officers Association of the United States and Canada, 1313 East 60th Street, Chicago 37, Ill. 1956. 6 pp. 50 cents.*

Mr. McGee, an investment banker who has had long association with municipal finance, studies the major influences which help to shape the municipal bond market, analyzes future market conditions, and has some cautious advice for public officials. His conclusions are: (1) the heaviest demands of municipal borrowing in the future will be made for school building construction, highways, water supply and distribution systems, and sanitary systems; (2) under normal conditions, municipalities always will be able to raise sufficient funds to meet capital needs; (3) issue bonds only when you need money for essential capital purposes. Postpone bonds if the market becomes overwhelmed by a rush of offerings.

The material contained in this bulletin is based upon a paper delivered by the author at the 50th MFOA Annual Conference, held in Washington, D. C., earlier this year.

New Compilation of ASTM Standards

ASTM STANDARDS ON MINERAL AGGREGATES AND CONCRETE *(with Selected Highway Materials). Published by the American Society of Testing Materials, 1916 Race St., Philadelphia 3, Pa., 348 pp. $3.75.*

This latest publication of ASTM Standards is sponsored by Committee C-9 on Concrete and Concrete Aggregates and Committee D-4 on Road and Paving Materials. It includes the latest edition of standard and tentative specifications, test methods, and definitions of terms pertaining to mineral aggregates, concrete and selected highway materials. It also contains pertinent specifications for cement under the jurisdiction of Committee C-1 on Cement, and reference specifications on concrete reinforcement bars prepared by Committee A-1 on Steel.

The publication includes specifications and methods of test for aggregates; ready mixed concrete; air entraining mixtures; method of test for air content of concrete, compressive strength, flexural strength, freezing and thawing, slump test; brick and block pavement materials; concrete curing materials; expansion joint filters; and cement.

The book is useful to both producers and users of materials covered.

Present and Future Freeways for Los Angeles

FREEWAYS: LOS ANGELES METROPOLITAN AREA—*Los Angeles Metropolitan Traffic Association, 610 South Main St., Room 987, Los Angeles 14, Calif. 1956. 6 pp., maps.*

This report describes the present freeway system in the Los Angeles Metropolitan Area and outlines plans for future expansion and integration. It covers four categories of freeways: freeways in the state system; freeways not in the state system; freeways not in the state system but in approved master plan of freeways; and freeways in national system of interstate and defense highways. The tabulation for freeways shows length, mileage completed, mileage under construction, and costs, etc.

Big Downtown Redevelopment Plan for Chicago

THE FORT DEARBORN PROJECT—*Earl Kribben, director. Fort Dearborn Project 25 East Washington St., Chicago 2, Ill. 1956. 16 pp.*

This pictorial report describes a planned redevelopment project proposed for a site covering some 147 acres in central Chicago. The plan, developed on the basis of city-wide planning considerations proposed six kinds of land use: government buildings; a close-in heliport; commercial; residental; industrial; and parking facilities. Charts and diagrams present a breakdown of land use; floor space; cost estimates; and estimates of future tax revenues.

Bibliography of Recent Publications on Government Finance and Taxation

TAX INSTITUTE BOOKSHELF—*No. 50, June 1956. Tax Institute, Inc., 457 Nassau St., Princeton, N. J. 43 pp. Single copies, $1.00.*

Recent publications in the field of government finance and taxation are indexed in this latest issue of the Tax Institute Bookshelf. Published material is grouped under the major headings of Public Finance, Taxes and Other governmental Revenues, Expenditures, Public Debt, Fiscal Policy, Intergovernmental Fiscal Relations, Federal, State and Local Fiscal Administration, and International and Foreign Public Finance.

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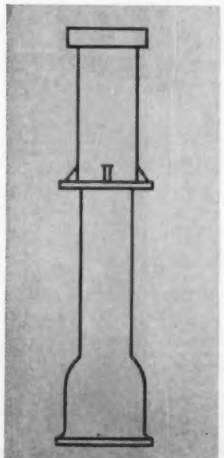

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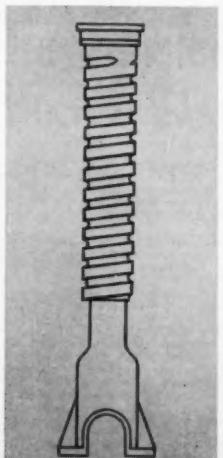

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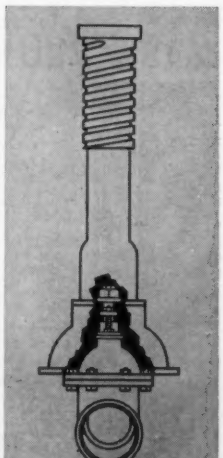

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Population Forecasts for Vancouver

POPULATION PROSPECTUS: VANCOUVER, WASH., AND CLARK COUNTY 1936-1975—*Vancouver Planning Commission, Planning Office, 8th and Washington Sts., Vancouver, Wash.* 1956. 26 *pp.*

This population prospectus illustrates an interesting technique for making population forecasts in developing planning programs. The basic method used is the co-hort survival technique which estimates future population by applying birth and death rates to each five-year age group. Net migration is determined by ratio of local to state trends. The forecast range makes use of high, medium, and low estimates to be used for different purposes. For instance, while the low figure is recommended for estimating future tax revenue, the high figure would be more appropriate for planning school facilities to avoid costly rebuilding. The forecast shows population figures by age and sex for the City of Vancouver and Clark County up to 1975 over five-year periods.

Public Health Program

PUBLIC HEALTH ADMINISTRATION IN WEST VIRGINIA—*By Eugene R. Elkins and Larry Young. Publication No. 17 of the Bureau For Government Research, West Virginia University, Morgantown, W. Va.* 1956. 45 *pp.*

This publication outlines the public health program in West Virginia. It describes the scope of public health activities, history of the state health administration, administrative agencies on state and local levels, federal aid and the mental health program.

Policemen's Salaries in Virginia Towns and Cities

SALARIES AND WORKING CONDITIONS OF POLICEMEN IN VARIOUS VIRGINIA POLICE DEPARTMENTS—*League of Virginia Municipalities Report No. 386, 905 Travelers Bldg., Richmond 19, Va.* 1956. 10 *pp.* 75 *cents. Free to Virginia Municipal officials.*

Information on police jobs in a group of Virginia municipalities are tabulated according to job titles, annual pay, work week, vacation and equipment provisions. Municipalities with population figures are listed alphabetically.

Eight job categories are included: chief, captain, lieutenant, sergeant, detectives, patrolman and office clerks.

City Planning in Canadian Uraniumland

URANIUM CITY AND DISTRICT: A GUIDE FOR DEVELOPMENT—*By K. Izumi & G. R. Arnot, in cooperation with the Community Planning Branch, Department of Municipal Affairs, Regina, Saskatchewan, Canada.* 1956. 74 *pp.*

This is another in a series of community development programs prepared by the Planning Branch of the Department of Municipal Affairs of the Province of Saskatchewan. Uranium City, called the "fastest growing" community in the Province, was established in 1952 and has a population of about 1,500. This planning report records existing conditions; economic, population, and land use conditions; and presents a comprehensive, "tentative" general development plan to prepare the city for its future physical and economic growth.

Planning Report for a Regional Medical Center

THE MEDICAL CENTER DISTRICT: PLANNING ANALYSIS AND RECOMMENDATIONS — *Prepared by the Chicago Plan Commission and the Office of the Housing and Redevelopment Coordinator in cooperation with the Medical Center Commission and the Chicago Park District, City of Chicago, Chicago, Ill.* 1956. 65 *pp.*

This is an interesting reanalysis of the physical needs of an impressive group of hospitals, clinics, medical schools, and other health organizations serving the Chicago area. All are at present located in close proximity to each other on Chicago's west side, and all have been linked together for physical planning purposes under a state-created medical center commission. This report reviews a development plan for the medical center that was made in 1941 and recommends changes in some of the basic assumptions. A new physical plan is proposed which includes housing for 10% of the personnel working in the center. This is a well-documented report.

Annual Report of NYC Planning Commission

REPORT 1954-1955—*City Planning Commission, City of New York. Department of City Planning, Municipal Building, New York 7, N. Y.* 1956. 28 *pp.*

This illustrated report of the City Planning Commission outlines New York City's activities in zoning, planning, urban renewal, capital and public improvements for 1954 and 1955. Statistical information covers the capital budget, schools, and public housing projects.

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Market Analysis for San Francisco Redevelopment Project

SUMMARY OF MARKET ANALYSIS: REDEVELOPMENT AREA "E", SAN FRANCISCO, CALIF. —*Prepared by Real Estate Research Corporation and San Francisco Department of City Planning, 100 Larkin St., San Francisco 2, Calif.* 1956. 24 *pp.*

This summary of a detailed report originally prepared for the San Francisco Planning Commission contains findings and recommedations made in a market analysis for a redevelopment project in San Francisco. Designated as Area "E", the project covers 50 to 52 acres located between the Bay and downtown San Francisco and involves seven counties.

Its major recommendations for Area "E" call for the development of 1,500,000 square feet of office space and, either (1) a residential development containing high-rise apartment buildings, plus commercial parking facilities and an existent state park, or (2) a convention complex of hotel facilities, convention hall, a combination airlines terminal and heliport, plus parking facilities and the state park.

Purchasing Manual

MANUAL — *Prepared by General Services Department, Greensboro, N. C.,* 1956. 38 *pp.*

Municipal officials may find this a useful model for preparing purchasing manuals of their own. Prepared for the City of Greensboro, it covers purchasing procedures established under state and city laws for municipal governmental agencies. In the main it sets forth the adopted rules and regulations of the purchasing department, correct procedures for dealing with the General Services Department and procedures to be followed in extraordinary cases.

Analyzes Growth of Metropolitan Areas

THE CHANGING SHAPE OF METROPOLITAN AMERICAS DECONCENTRATION SINCE 1920— *By Amos H. Hawley. The Free Press, 1005 West Belmont Ave., Chicago 13, Ill.* 1956. 177 *pp.* $4.

This technical work is an intensive analysis of population distribution within all metropolitan areas of the United States based on data obtained from the last six censuses.

Population shifts are analyzed with reference to the size of the central city and trends in the proportions of the metropolitan labor force, manufacturing industry, and industrial location and relocation with in metropolitan areas.

Mr. Hawley's general findings are that from 1900 to 1920 the trend within metropolitan areas was toward concentration in and close about central cities; deconcentration, or dispersion into the satellite areas started after 1920 and accelerated through the following decades to 1950.

Mr. Hawley also concludes, that "the most rapidly growing metropolitan areas, since 1900, have been those in the West, while the lowest rates of growth occurred in northern areas. But while the relative growth of satellite areas was highest in the West, from 1900 to 1920, the North has led in that respect since 1920."

Appendix Table I analyzes all metropolitan areas in the United States according to size of central city, average annual growth rate, distance between central cities and direction of industrial location.

Thoroughfare Plan for a City of 18,000

A THOROUGHFARE PLAN FOR THE CITY OF PORTSMOUTH, N. H.—*Prepared for New Hampshire State Planning and Development Commission, Concord, N. H., by Planning And Renewal Associates, Newton Centre, Mass.* 1956. 21 *pp.*

The present and future circulation patterns of Portsmouth are the subject of this study. The report on existing condition covers circulation, traffic volume, and land use and parking in the central business district. The thoroughfare plan calls for the construction of a downtown loop, an off-street parking belt that would give easy access to the central district and a revised system of traffic control.

Vacation and Sick Leave Data for New York Towns and Cities

REPORTS *issued by the New York State Conference of Mayors Bureau of Municipal Information, 6 Elk St., Albany, N. Y. Free to New York State municipal officials. Others, $1 per report, or $5 for the complete set.*

These recent reports provide information on salary, vacation, sick leave for employees and officials of police and water departments in each of the New York municipalities. A separate report provides data on veto power and membership on the Common Council for New York city mayors.

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Review of Slum Clearance Progress in New York City

TITLE I SLUM CLEARANCE PROGRESS—*Prepared by the Committee On Slum Clearance, Randall's Island, New York 35, N. Y.* 1956.. 23 *pp.*

New York City's slum clearance program is expected to total $1,180,000,000 in federal, city, and private investment. A total of 35 projects are involved, of which ten are under contract, seven are under study, and 18 are planned for the future. This pictorial report shows skyviews, architectural renderings breakdowns of cost estimates, land areas, dwelling units and taxes of the various projects.

Planning Against Storm Emergencies

WINDSTORM DAMAGE PREVENTION—*National Board of Fire Underwriters, 85 John St., New York 38, N. Y.* 1956. 40 *pp. Free.*

Intended as a guide for architects, engineers, and persons concerned with building standards, this illustrated booklet deals with tornados and hurricanes, their effects on buildings and precautionary measures to reduce windstorm damage. Suggestions are made for municipal officials to guide their planning for storm emergencies, including recommendations for pre-disaster planning, for safeguarding water supplies, and for fire prevention and control.

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Information on Professional Organizations of Municipal Officials

PROFESSIONAL ORGANIZATION OF MUNICIPAL OFFICIALS—*Report 149, Management Information Service, International City Managers' Association, 1313 East 60th St., Chicago 37, Ill.* 21 *pp. Available only to subscribers.*

There are at present at least 22 professional organizations for municipal officials in the United States. This MIS report will provide city officials with information on the resources, services, costs, and benefits of this principal group of nationwide voluntary organizations that offer immediate and practical services to city governments. It summarizes the purpose, services and membership of these 22 organizations and contains a table showing for each organization the year organized, number of state and regional chapters, individual and agency members, membership services, number of full-time staff, etc.

The report also includes information on five nonprofessional organizations that have interest and value for municipal officials such as the American Municipal Association.

Local Government in Metropolitan Austin

GOVERNMENT IN METROPOLITAN AUSTIN—*By John Gillespie. Institute of Public Affairs, the University of Texas, Austin, Texas.* 1956. 82 *pp.* $1.50.

This analysis of local government in metropolitan Austin, Texas, is a further discussion of the nationwide metropolitan problem, for this area of 160,000 persons shares the same problems with other metropolitan areas in the United States: a multiplicity of overlapping and adjacent local government units; an inequitable sharing of financial burdens for governmental services; undue financial burdens placed on the central city; and lack of an area approach to area-wide problems.

The major recommendations contained in this report are patterned after suggestions made in recent metropolitan studies: (1) over-all metropolitan planning and the establishment of a city-county planning commission, and (2) functional rearrangement between the central city and the county which should assume area-wide functions.

Listing of Citizen Planning Groups

CITIZEN ORGANIZATIONS FOR PLANNING—*City Planning Division, University of Arkansas, Fayetteville, Ark.* 1956. 17 *pp.*

This is a partial listing of citizen organizations that support or promote city and regional planning activities. Nationwide, state-wide, and city-wide groups are listed. Although this is not the definitive list of such organizations by a long shot, this publication can be of help to persons wanting to start such a group in their home city.

Other Reports Received

Administration and Government

BEVERLY HILLS, CALIF.—Progress Report. An informational bulletin prepared by the City Council.

KANSAS—Kansas Voters' Guide, Part 1,

BROS *tip sheet* **EXTRA**

BROS ROTARY SNOW PLOW LOADS 5-YARD TRUCK IN 30 SECONDS; CASTS 50 FEET IN ANY DIRECTION

MOUNTS ON INDUSTRIAL TYPE TRACTOR LOADERS, GRADERS AND JEEPS

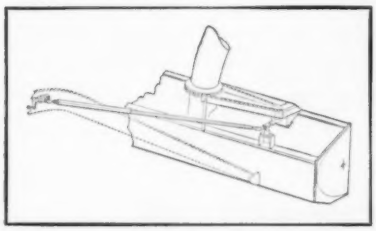
SNOW BELT, U.S.A. The big news in this part of the country is single lane loading of windrowed snow with the Bros Series "A" Sno-Flyr. This powerful rotary snow plow loads a 5-yard truck in less than 30 seconds — or where convenient — tosses tons of snow up to 50 feet away.

That's really getting snow off the streets fast and it's done without snarling traffic; the Sno-Flyr's casting chute is rotated directly forward to load truck straddling windrowed snow. The whole operation is performed up to 10 times faster than by bucket loader and without jockeying back and forth for loading position.

Heavy, wet snow is hurled by the ton into waiting line of trucks on Luverne, Minnesota's Main Street. Normal traffic is quickly resumed after heavy March snow fall. Bros Series "A" is mounted on Ford Major tractor with Wagner loader. Dozens of snow belt cities report enthusiastic approval of this plow's great performance.

MOUNTS ON MOST INDUSTRIAL-TYPE TRACTORS

The Bros Series "A" mounts on almost all front-end hydraulic bucket loader attachments with 1,000 lb. capacity. It is easily installed by the same bucket pin connections. Hydraulic lift arms permit plow to knock down drifts up to 10 feet high, chewing them down layer by layer. No other comparable rotary can work on deep drifts so effectively.



BALL BEARING MOUNTED CASTING CHUTE

Ball bearing mounted casting chute is turned from the tractor cab, providing you with directional control of snow ejection through 180 degree arc. Positive control for "spot casting" in confined areas.

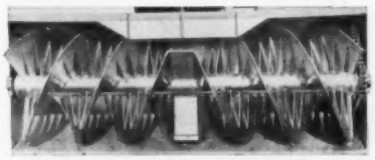
The Series "A" Sno-Flyr's segmented "finger joint" chute capper permits you to adjust height of snow stream, just like crooking your finger. And an optional longer chute which is interchangeable with capper is available for loading trucks.

BROS SLIT-SPIRAL ROTOR-FEED RAKE

A close look at the Series "A" slit-spiral rotor-feed rake shows you the world famous Bros Sno-Flyr design. It rapidly gorges wet, heavy and chunky snow as well as fresh fallen snow; small stones and street debris do not hamper its operation.

The non-clogging rotor-rake feeds the snow to casting chute, as rapidly as moldboard area fills, hurling it up and out.

Rotor's cutting height is 30 inches. Oscillating type runners provide ground contact.

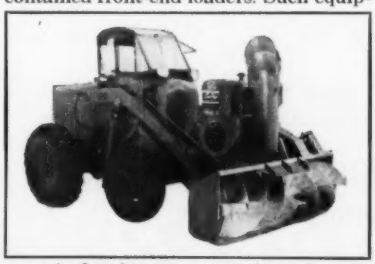


The unique knifing action of the slits prevents packing of snow around the rotor hub; snow is moved up to 7 tons per minute in a constant, even discharge.

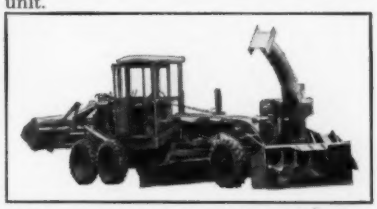
Three plowing widths are available: 4′ 4″, 5′ 6″, and 6′ 6″. With only a 30 hp engine, the Series "A" performs the work of much bigger units and with equal efficiency.

MOUNTS ON OTHER TYPES OF EQUIPMENT

Besides mounting on most industrial type tractors, the Bros Series "A" Sno-Flyr mounts on popular makes of self-contained front-end loaders. Such equipment is thus kept on a year 'round working schedule.

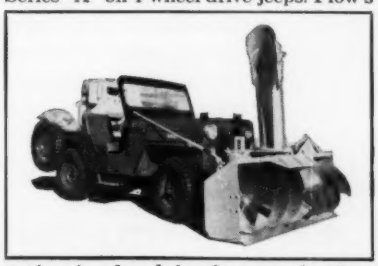


Road patrol graders and crawler tractors, too, use the powerful Bros Series "A". Hydraulic arms for scarifier on grader are used to attach snow plow unit.



FOR 4-WHEEL DRIVE JEEPS

A special undercarriage push frame and hydraulic lift are used to mount the Series "A" on 4-wheel drive jeeps. Plow's engine is placed in the rear for best weight distribution. This unit is sold nationally through Jeep distributors.



You'll find the Bros Series "A" Sno-Flyr the best operational plow for solving municipal snow removal problems. It is especially effective in cramped working areas. Get complete information and a demonstration from your nearest Bros distributor. Or write: The Wm. Bros Boiler & Mfg. Co., 1057 Tenth Ave. S.E., Minneapolis 14, Minnesota.

1956. Prepared by the Government Research Center, University of Kansas, Lawrence, Kans.

WASHINGTON—Information Bulletin, 22nd Annual Convention of the Association of Washington Cities, 1956. Prepared by the Association of Washington Cities in cooperation with the Bureau of Governmental Research and Services, University of Washington, Seattle, Wash.

Air Pollution

GENERAL—Air Pollution Methodology. Prepared by W. C. L. Hemeon, Director, Hemeon Associates, Pittsburgh, Pa.

Annual Reports

EASTON, PA.—1955 Annual Report.

MENLO PARK, CALIF.—1955 Annual Report.

NAPA, CALIF.—1955 Annual Report.

STRATFORD, CONN.—1955-6 Annual Report.

Finance and Taxation

HOUSTON, TEXAS—1956 Tax Rates of the Eight Overlapping Taxing Units on Property Located in the City of Houston. Prepared by Tax Research Association of Houston and Harris County, Inc., July 1956.

MONTREAL, CANADA—1955 Annual Financial Statement and Assessments. Prepared by the Montreal Metropolitan Commission.

TOPEKA, KANS.—1955 Annual Report of the Department of Finance and Revenue.

VIRGINIA—Bonded Debt of Virginia Cities As of June 30, 1956. Prepared by the League of Virginia Municipalities, 905 Travelers Building, Richmond 19, Va. 75 cents; Foreign Countries, $1. Distribution free to Virginia municipal officials.

Industry and the Community

CYNTHIA, KY.—Industrial Resources. Prepared by City of Cynthia and The Agricultural and Industrial Development Board of Kentucky, Frankfort, Ky., April 1956.

HENDERSON, KY.—Industrial Resources. Prepared by Henderson Chamber of Commerce and The Agricultural and Industrial Development Board of Kentucky, February 1956.

LEBANON, KY.—Industrial Resources. Prepared by The Lebanon Chamber of Commerce and The Agricultural and Industrial Development Board of Kentucky, Frankfort, Ky., April 1956.

LONG BEACH, CALIF.—Industrial Opportunities and Plant Site Data. Prepared by the Long Beach Chamber of Commerce, Long Beach, Calif.

STANFORD, KY.—Industrial Resources. Prepared by Stanford Chamber of Commerce and The Department of Economic Development, Frankfort, Ky., July 1956.

Miscellaneous

MAINE—Maine Register, 1956-7. Prepared by Fred L. Tower Companies, 335 Forest Avenue, Portland, Maine. $20.

NEW YORK, N. Y.—1955 Annual Report of Oceanborne Foreign Trade at the Port of New York. Prepared by The Port of New York Authority.

Parks and Playgrounds

NEW YORK, N. Y.—Jointly Operated Playgrounds. Prepared by the Department of Parks and the Board of Education, 1956.

Planning, Housing and Zoning

CANADA—Canadian Housing Statistics, Quarterly Report. Prepared by the Economic Research Development Division, Central Mortgage and Housing Corporation, June 1956.

CHICAGO, ILL.—Projections of Population For the Chicago Standard Metropolitan Area to 1980. A report by the Chicago Community Inventory, University of Chicago, to the Chicago Plan Commission and the Office of the Housing and Redevelopment Coordinator, City of Chicago, August 1955.

PHILADELPHIA, PA.—1955 Annual Report of the Philadelphia Housing Authority.

Public Health

DAYTON, OHIO—1955 Report of the Division of Health.

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Conventions—When and Where

(Continued from page 207)

Oct. 31-Nov. 2—Bluefield, W. Va.
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Exec. Sec., Hugh Hetzer, West Virginia Water Service Co. 179 Summers St., Charleston 1, W. Va.

Nov. 1-2—Omaha, Nebr.
NEBRASKA SEWAGE & INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Castle Hotel). Sec.-Treas., V. J. Lechtenberg, 614 Standard Oil Bldg., Omaha 2, Nebr.

Nov. 7-9—Old Point Comfort, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Meeting (Hotel Chamberlin). Sec.-Treas., J. P. Kavanagh, 213 Carlton Terrace Bldg., Roanoke, Va.

Nov. 10-12—Atlantic City, N. J.
ADULT EDUCATION ASSOCIATION OF THE UNITED STATES. Annual Convention (Chalfonte-Haddon Hall). Administrative Coordinator, Malcolm S. Knowles, 743 N. Wabash Ave., Chicago 11, Ill.

Nov. 11-13—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Convention (Hotel Marion). Exec. Dir., Glenn G. Zimmerman, 416 Maple St., North Little Rock, Ark.

Nov. 11-13—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Hotel Leland). Exec. Dir., A. L. Sargent, 537 S. 4th St., Springfield, Ill.

***Nov. 11-14—Daytona Beach, Fla.**
AMERICAN WATER WORKS ASSOCIATION—Florida Section. Annual Meeting (Daytona Plaza Hotel). Sec., Jay D. Roth, City Hall, Miami Beach.

Nov. 11-14—Memphis, Tenn.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Peabody Hotel). Exec. Dir., Alfred Willoughby, 47 E. 68th St., New York 21, N. Y.

Nov. 11-18—Tucker's Town, Bermuda
AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION. Annual Convention (Castle Harbour Hotel). Managing Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

Nov. 12-14—Charlotte, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section. Annual Meeting (Charlotte Hotel). Exec. Sec., W. E. Long, Jr., Chief, Pollution Control Section, State Stream Sanitation Committee, State Board of Health, P. O. Box 2091, Raleigh, N. C.

Nov. 12-15—Miami, Fla.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Conference (Biscayne Terrace Hotel). Sec.-Mgr., B. Richter Townsend, Hotel Martinique, Broadway at 32nd St., New York 1, N. Y.

Nov. 12-16—Atlantic City, N. J.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Convention Hall). Exec. Sec., Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Nov. 13-16—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Convention (Chalfonte-Haddon Hall). Exec. Dir., Mrs. Madeline S. Frost, 603 Trenton Trust Bldg., Trenton, N. J.

Nov. 13-16—Los Angeles, Calif.
NATIONAL TAX ASSOCIATION. Annual Convention (Biltmore Hotel). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Nov. 15-17—Fort Lauderdale, Fla.
FLORIDA LEAGUE OF MUNICIPALITIES. Annual Convention (Lauderdale Beach Hotel). Exec. Sec., Gordon T. Butler, 401 Exchange Bldg., Jacksonville, Fla.

(Continued on page 221)

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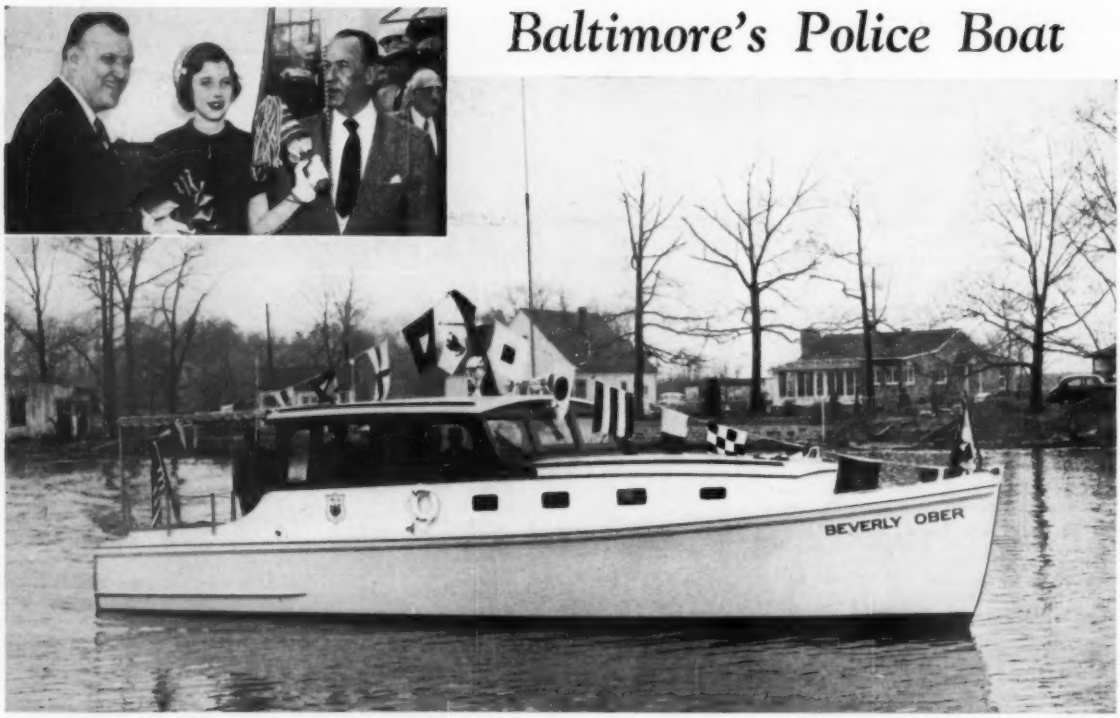

Governor Theodore R. McKeldin (left), Miss Ellen Ober, and Police Commissioner James M. Hepbron at the launching of Baltimore's harbor patrol boat, "Beverly Ober."

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Conventions—When and Where

(Continued from page 219)

Nov. 25-28—St. Louis, Mo.
AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Park Plaza-Chase). Exec. Dir., Patrick Healy, Jr., 1625 H St., NW., Washington 6, D. C.

Nov. 25-29—Miami Beach, Fla.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Hotel Seville). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Nov. 26-28—Colorado Springs, Colo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (Broadmoor Hotel). Sec.-Treas., Jack W. Davis, 301 Continental Oil Bldg., Denver, Colo.

***Nov. 27-28—St. Louis, Mo.**
GOVERNMENT PUBLIC RELATIONS ASSOCIATION. Meeting with the American Municipal Association (Hunt Room, Chase Hotel). Exec. Dir., Mrs. Pan Dodd Wheeler, Box 8260, University Station, Knoxville, Tenn.

Nov. 27-30—Atlantic City, N. J.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Traymore Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

Dec. 2-5—Philadelphia, Pa.
PENNSYLVANIA LEAGUE OF CITIES. Annual Convention (Bellevue-Stratford). Exec. Dir., John N. O'Neil, Room 302, City Hall, Harrisburg, Pa.

Dec. 4-7—Chicago, Ill.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Convention (Edgewater Beach Hotel). Exec. Dir., Loula Dunn, 1313 E. 60th St., Chicago 37, Ill.

***Dec. 3-7—Stillwater, Okla.**
OKLAHOMA SHORT SCHOOL FOR WATER & SEWAGE OPERATORS. Annual Short School (Student Union Building, Oklahoma A&M College). Exec. Sec., H. M. Crane, Sanitary Engineer, State Department of Health, 3400 N. Eastern, Oklahoma City, Okla

Jan. 7-11—1957—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (Sheraton-Park). Dir., Fred Burggraf, 2101 Constitution Ave., Washington, D. C.

***Jan. 17-18—New York, N. Y.**
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Hotel Belmont Plaza). Exec. Sec., R. C. Sweeney, State Department of Health, 21 N. Broadway, White Plains, N. Y.

Jan. 28-Feb. 2—Chicago, Ill.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention and Road Show (Chicago Amphitheater). For further information address the ARBA, 600 World Center Bldg., Washington 6, D. C.

***Jan. 31-Feb. 1—Wilmington, Calif.**
ANNUAL INSTRUMENT SHORT COURSE. (Los Angeles Harbor Junior College). Sec.-Treas., George Forster, 640 Fillmore St., Fillmore, Calif.

***Feb. 6-8—Indianapolis, Ind.**
AMERICAN WATER WORKS ASSOCIATION—INDIANA SECTION. Annual Meeting (Sheraton-Lincoln). Sec.-Treas., R. J. Baker, 113 Monument Circle, Indianapolis.

March 17-21—San Francisco, Calif.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Sheraton Palace). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

March 21-23—Chicago, Ill.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Convention (Hotel Sherman). Sec.-Treas., Miss Laverne Burchfield, 1313 E. 60th St., Chicago 37, Ill.

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Sparkler Model SCJ filters can supply practically any required volume of city water. Single units with a capacity of 5,000,000 gal. per day are available. Multiple units including a standby filter is usually employed to insure uninterrupted service for large volume requirements.

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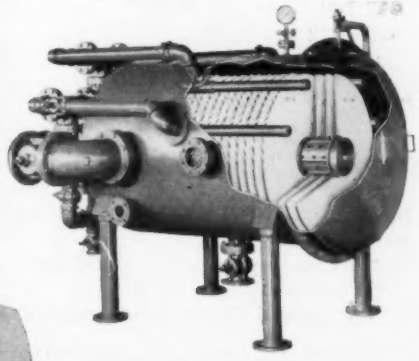

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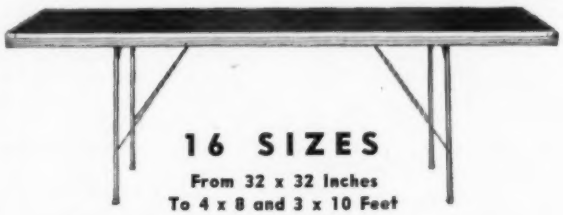

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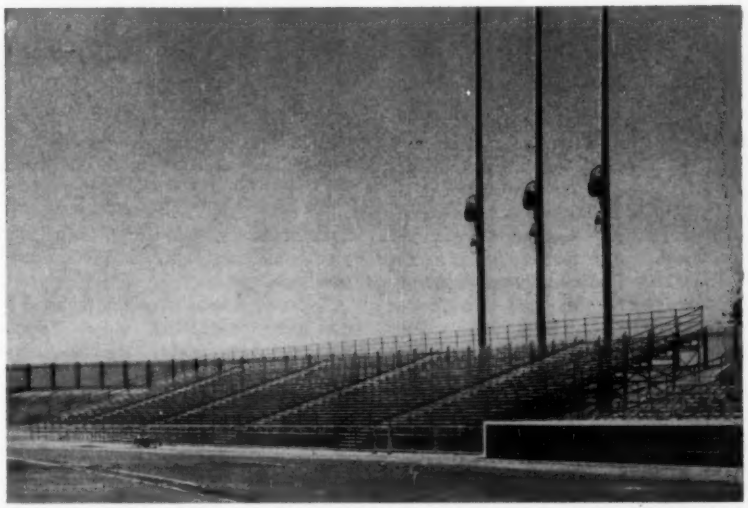
Low-Cost Bleachers Are Easy to Erect

Need low-cost seating in a hurry? The Waco Mfg. Co. will provide your city with economical, portable bleachers that are quickly set up for every municipal event. This sturdy seating is easily erected without braces, nuts, bolts or special tools. Self-locking plank fasteners secure planks instantly, without screws or nails.

A successful installation of Waco bleachers may be found at the new Metropolitan Sports Arena Stadium at Bloomington, Minn. Through the efforts of company engineers, working with the architectural firm of Thorshov & Cerny, a system of bleacher seating providing about 15,000 seats was designed for installation along the first and third base line, and around the outfield. The bleachers are designed to give customers a clear, unobstructed view of the playing field without blocking the vision of spectators seated in the permanent grandstand.

In Bloomington, Waco engineers designed a bleacher with a 7-inch rise, assuring everyone an unobstructed view of the playing field. The bleachers are elevated 48 inches off the ground, while foot traffic is kept at ground level. This provides front-row spectators with clear vision over the heads of walking spectators.

How your city can get low-cost, comfortable seating in a hurry, is explained in literature from the WACO MFG. CO., MINNEAPOLIS, MINN. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 895.



These portable bleachers are easily erected without braces, nuts, bolts or special tools.

Clark Equipment Appoints New Dealers

Two firms have been appointed to sell and service Michigan excavator cranes in California and one to sell and service both cranes and tractor shovels in New Mexico, according to Clarence E. Killebrew, vice-president of the Clark Equipment Co. The Michigan line is manufactured by Clark's Construction Machinery Division located in Benton Harbor, Mich.

The Buran Equipment Co., of Oakland, Calif., and the Sierra Machinery Co., of Reno, Nevada, will handle ex-excavator-crane sales and service in California. In New Mexico, both Michigan excavator cranes and tractor shovels will be handled by the N. C. Ribble Co., of Albuquerque.

Caterpillar Acquires New Subsidiary

The recent acquisition of the Englehart Mfg. Co., by the Caterpillar Tractor Co. of Peoria, Ill., is announced by H. S. Eberhard, president of Caterpillar, and C. E. Murray, president of Englehart. The Davenport (Ia.) firm has been a major supplier of Caterpillar parts for the past 13 years. As a Caterpillar subsidiary, it will continue to operate under its present name, and Mr. Murray, as president, will continue as chief administrative officer.

Bituminous Distributors

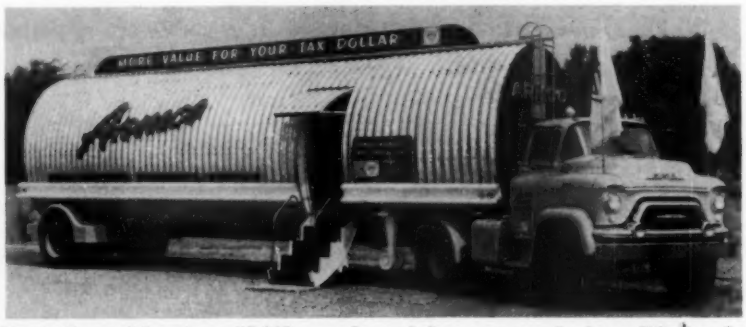
One way to simplify your street construction jobs is to specify a Seaman-Gunnison Swing Bar distributor. These efficient units are available mounted on trucks or trailers, and feature an "Air-Snap" spray-bar shut-off. This special feature assures the positive, accurate application of tars and bituminous binders. It also provides instant flow and "shut-off," and eliminates "fat" and "lean" spots. Cut-off is quick and clean, and there is no dripping after the unit is shut off.

Front end controls are standard equipment on the new Swing Bar distributors. The operator sees the work coming up, the work he's doing, and what he's done. The Swing-Bar can be moved up or down,

right or left, yet the material flows unhampered through the joints. Swing-bar extensions do not have to be removed, and they turn back a full 180° for fast, safe transport.

A more detailed description of the new distributors may be obtained from the SEAMAN-GUNNISON CORP., 201 LYNN AVE., BARABOO, WIS. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 901.

Steel Sewer Pipe on Wheels



Pipe-trailer weighs about 22,000 pounds, and has year-round air-conditioning for the comfort of visitors.

The Armco Steelmobile, a 30-foot sewer pipe on wheels, hit the road recently on a 50,000-mile, 16-month tour of major cities. This unusual traveling exhibit is built in the shape of a huge corrugated metal pipe, similar to the pipe used for sewers, culverts and other drainage work. The elliptically-shaped trailer is 35 feet long, 8 feet wide through the body, and 12 feet-3 inches high to the catwalk. The sign on top is lowered during travel.

The pipe-trailer houses 16 exhibits of municipal construction products and services, and is expected to attract thousands of municipal, county and state engineers as visitors. Products on display include water supply and sewer pipe, drainage pipe, tunnel liner plate, water control gates, highway guard rail, foundation piling, retaining walls, and prefabricated steel buildings.

The new Armco exhibit is reported to cost more than $50,000 and took about nine months to build. It is sponsored by ARMCO DRAINAGE & METAL PRODUCTS, INC., 3316 CURTIS ST., MIDDLETOWN, OHIO.

For information on when and where you can view the Steelmobile, write directly to the manufacturer, or you may use the Post Card on the insert following Page 52. Circle No. 894.

Los Angeles Gets A New Close-Up

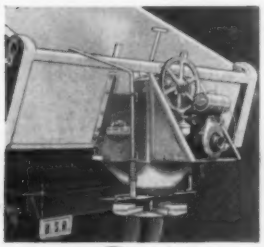
The City of Los Angeles is having its picture taken again, this time with real close-ups (see cover photo). The City Board of Public Works recently awarded a contract for a large composite photomap, made from aerial photography, to FAIRCHILD AERIAL SURVEYS, INC., 224 E. 11th ST., LOS ANGELES 15, CALIF. The map will be at the disposal of various city departments and bureaus.

According to the aerial mapping firm,

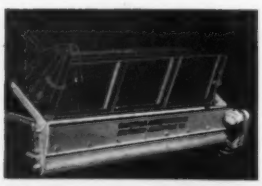
NOW! THE CONTROL OF ICE AT A REASONABLE PRICE!

...with BAUGHMAN tailgate and pull-type ICE CONTROL SPREADERS

THE SALT MISER.
Hydraulic or auxiliary engine. Metering valve maintains accurate volume control. Controls permit left or right hand spread pattern.



MODEL MD-1.
Compact Rugged Operates on auxiliary engine. Spreads 8'-30'. Convenient controls for amount and direction of spread.



SUPER SPREADER.
Forward or reverse spreading. Mechanical or hydraulic drive. Any material up to ½" dia. Fits any dump body. Hard-metal criss cross tread provides even application.

MODEL HD-51.
Hydraulic operation. Hinged mounting for always-level position of unit. Controls for volume of material and spread pattern.

MODEL SC-52.
Pull-type. 360° spread pattern. Adjustable valve for quantity control.

PLUS truck-mounted equipment

WRITE FOR new Baughman Ice-Control Catalog.

BAUGHMAN

BAUGHMAN MANUFACTURING CO., Inc.

150 SHIPMAN ROAD JERSEYVILLE, ILLINOIS

1,200 photographs are to be taken of a 1,200-square-mile area. These photographs will be compiled into a mosaic, or photomap, consisting of 343 atlas sheets at a scale of 400 feet to the inch. At this scale, the Los Angeles Memorial Coliseum will be 2½ inches long.

An increasing number of engineering, traffic and other municipal departments throughout the country are finding innumerable uses for aerial surveys in the planning and administration of their activities. If your city is interested in aerial photographic coverage, get the full facts from Fairchild Aerial Surveys, Inc. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 893.

Increased Power for Police and Fire Boats

Increased horsepower, a peak-charge generator for electric-starting outboards, and an end to shear-pin troubles are improvements announced by Johnson Motors for the company's 1957 models.

There are two new motors, a 35-hp model and an 18-hp model, replacing the 30 and the 15. The 35 and 18 will be built in both manual and electric-starting units, with the electric 35 additionally available in the deluxe "Golden Javelin" model for that extra flash in color and chrome trim.

Rounding out the Johnson 1957 line of nine motors in six power sizes are engines of 10, 7½, 5½, and 3 horsepower. All new models are now entering production and should reach dealers in market quantity in the next few weeks.

For new literature describing the motors and the new, fast-charging generators which maintain operating current for motor starters, cabin lights, and 2-way radio, write Johnson Motors, Waukegan, Ill., or you may use the Post Card on the insert following Page 52. Circle No. 877.

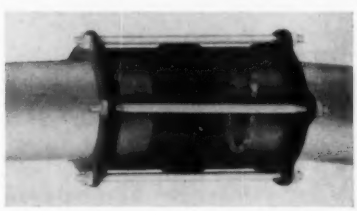
Cook Well Strainer Opens New Offices

A new plant and offices at 6330 Glenway Ave., Cincinnati 11, Ohio, have been opened by The Cook Well Strainer Co., manufacturers of water well strainers. The plant contains some 35,000 square feet of shop space and modern offices. It is strategically situated to offer the best transportation services.

Repair Coupling for Water, Gas Pipe

It's easy to repair misalignment breaks in water or gas pipelines when you use the Series 4K Flexible Cut-In Coupling, offered by Smith-Blair, 535 Railroad Ave., South San Francisco, Calif. The coupling may be used with cast-iron, asbestos-cement or steel pipe, and is easily installed with the pipe in place. It acts as a double coupling replacing twice the length of pipe cut out. You simply cut out any break, broken flange, bell or pipe coupling, and use the cut-in coupling in its place.

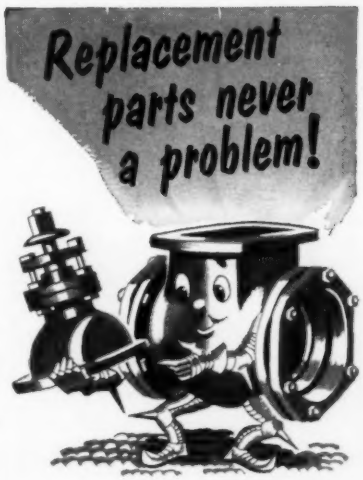
When the break in the pipe is cut out sufficiently for one sleeve to be placed, all the parts of the cut-in coupling are assembled to repair-connect the pipe while in place. The improved coupling consists of two sleeves, two gaskets, two



flanges and a centering ring complete with gaskets. These gaskets are tightened on the pipe, as an assembly, with through bolts.

The Series 4K coupling is now being made in a variety of sizes ranging from two through 12 inches. Larger sizes, in steel, are also available.

For a new bulletin describing the cut-in coupling, write directly to the manufacturer, or you may use the Post Card following Page 52. Circle No. 887.



Backed by more than 100 years of successful operations, Eddy Valve Company has always maintained interchangeability of repair parts. That's one of many reasons why thoughtful, "look-ahead" engineers and purchasing agents specify . . .

EDDY valves for:

- Extensions and New Installations.
- Installation of New Valves in existing lines.
- Replacement of worn-out valves.
- Shut-off Valves for hydrants.

Other reasons are:

- Taper seats provide positive, self-wedging action, assuring no-leak closing.
- Only 3 moving parts.
- Even new employees without special training can service and maintain any Eddy Valve.
- Available with standard or "O"-Ring packing.
- Furnished with bell, flange or mechanical joint connections to fit any existing or planned installation.
- 105 years of successful operations assure availability of repair parts.
- Conform to all A.W.W.A specifications.

EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons
WATERFORD, NEW YORK

Improved Power Drive, New Chain Wrench

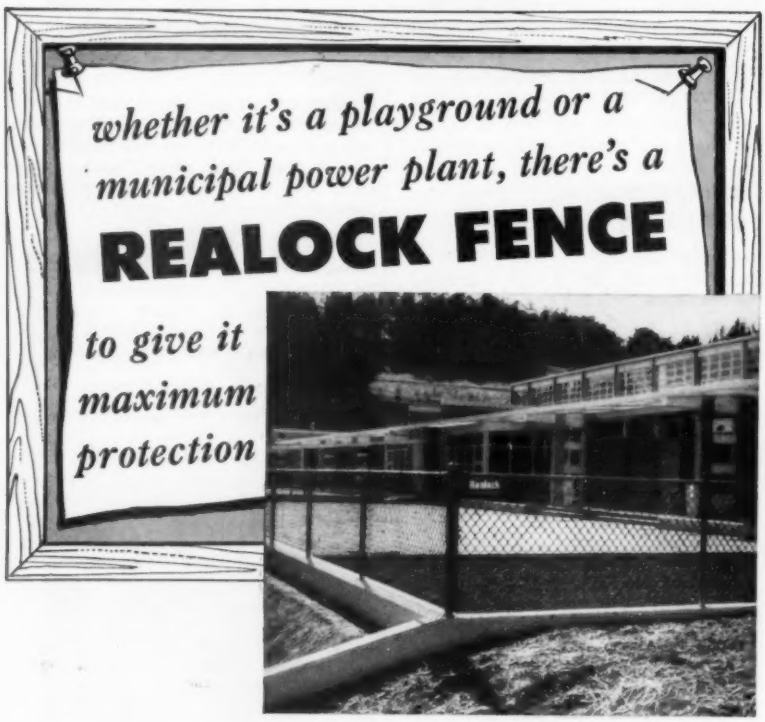
Simplify the job of pipe threading as well as pulling, lifting and turning operations with an improved power drive offered by THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO 4, OHIO. The portable drive has been completely redesigned for easier operation and longer life. It is slightly heavier, has a new, streamlined frame, and features a special ball bearing design.

A new handle design and the relocation of the control switch to a convenient position on the handle, makes the unit easy to hold and safe to operate. The trailing wiring, located out of the operator's way, is offered in either a painted or an aluminum finish. The No. 68 drive is powered by a 115-volt reversible AC or DC motor or a 90 psi air motor, and weighs only 33 pounds.

The Toledo Pipe Threading Machine Co. is also offering a new line of chain wrenches designed for "close corner" work on pipe up to 6 inches in diameter. The sturdy chain will fit round, hex, square and all irregular shapes. Two models are available, one for pipe ½ to 4 inches in diameter, the other for pipe 3 to 6 inches in diameter.

The new ball bearing design of this power drive is said to improve service life and minimize periodic maintenance.

Additional details on Toledo's improved power drive and new chain wrenches, may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 52. Circle No 897.



■ All over America, Realock Fences are providing dependable round-the-clock protection for every type of municipal installation. That's because each Realock Fence is tailor-made to fit the requirements of the customer.

Typical of the many Realock Fences now widely used by municipalities is Realock's Type 426. This sturdy fence gives positive protection for installations such as water works and power plants because it is available in heights up to 13 feet and is topped with six strands of sharp barbed wire.

Yes, there's a sturdy Realock Fence for every municipal need. Why not get full details from your nearby Realock representative? You can obtain his name from your classified telephone directory, or by writing the nearest district sales office shown below.

THE COLORADO FUEL AND IRON CORPORATION—Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION—Buffalo, New York

REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
CF&I
BRANCHES IN ALL KEY CITIES

3592

Cities Get Free Schooling in Truck Maintenance

Free schooling in truck maintenance by factory-trained specialists is available to mechanics and other motor pool personnel of any municipality using GMC trucks. The courses range from engine tune-up to the servicing of Hydra-Matic transmissions, and are taught in 30 shop classrooms across the country. All your city has to do to avail itself of the training program, is to pay for the subsistence of each employee. Courses last from one day to two weeks.

The GMC TRUCK AND COACH DIVISION, GENERAL MOTORS CORP., 660 SOUTH BOULEVARD, E., PONTIAC 11, MICH., initiated this informative program three years ago to help operators achieve the full benefits from their GMC trucks. Since that time, the training courses have turned out 8,000 skilled truck maintenance specialists at a rate of better than 200 per month. These specialists are able to increase the operating efficiency of their trucks, boost performance and appearance, reduce costly road failures and cut operating and upkeep expenses.

GMC training centers are located in Atlanta, Ga.; Boston, Mass.; Buffalo, N. Y.; Charlotte, N. C.; Chicago, Ill.; Cincinnati and Cleveland, Ohio; Dallas, Tex.; Denver, Colo.; Detroit, Mich.; El Paso and Houston, Tex.; Jacksonville,

Fla.; Kansas City, Mo.; Los Angeles, Calif.; Memphis, Tenn.; Milwaukee, Wis.; New Orleans, La.; Oakland, Calif.; Oklahoma City, Okla.; Omaha, Neb.; Philadelphia and Pittsburgh, Pa.; Portland, Ore.; St. Louis, Mo.; St. Paul, Minn.; Salt Lake City, Utah; Tarrytown, N. Y.; Union, N. J., and Washington, D. C.

Cities interested in the GMC training program can get full facts directly from the company, or use the Post Card on the insert following Page 52. Circle No. 904.

Portable Concrete Vibrator

Vibrating concrete for street construction and maintenance jobs is fast and easy when you're using a UniViber plug-in electric vibrator. This portable unit is easily handled by one operator, and may be quickly transported in the trunk of a car. Its compact design includes a motor housed in the head, and a flexible casing which also functions as a convenient handle. The vibrator is recommended for all mixes, except very low slump concrete.

UniViber heads are available in two models—Model IM3R with Viber-patented replaceable rubber tip, and Model IM3 with a steel nose housing. Other head specifications include a one-piece Viber patented eccentric weight, tapered to produce minimum vibration at the point where commutation takes place. The vibrator bearings have non-metallic separators and are splash lubricated. Head diameter is three inches.

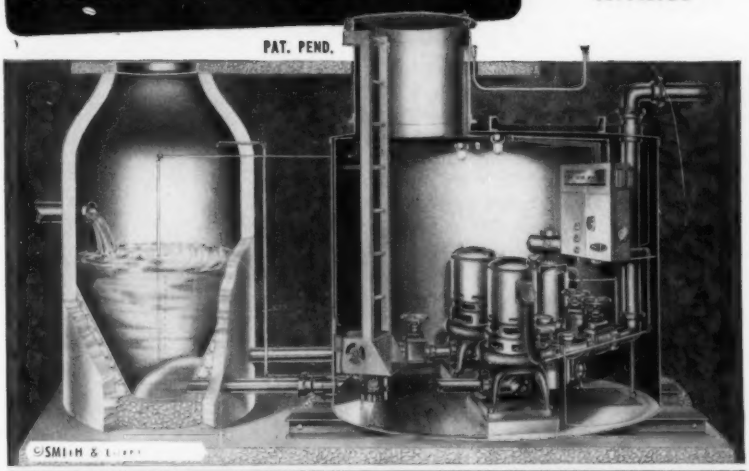
Illustrated literature on the UniViber is available from the VIBER CO., 726 S. FLOWER ST., BURBANK, CALIF. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 889.

HUNDREDS OF INSTALLATIONS—IN 27 STATES!

Specify—
The Smith & Loveless
FACTORY-BUILT
PUMPING STATION

PROVEN QUALITY—
WITH FACTORY-BUILT SAVINGS

PAT. PEND.



THE MOST ADVANCED DESIGN IN SEWAGE PUMPING STATIONS

We specialize in building America's finest sewage lift stations. Acceptance proves their quality. Smith & Loveless offer you a complete line of six standard size lift stations with capacities from 20 GPM to 1600 GPM per pump or ejector. Larger capacity stations are built to your order.

- An integrated design, each piece proven by the test of time.
- Precision assembled by factory experts.
- Automatic dehumidifier to eliminate condensation.
- A central electrical control cabinet prewired and color coded.
- Shot blasted steel structure epoxy coated plus cathodic protection.
- Factory tested and adjusted by actual operation before shipment.
- Easily and quickly installed.
- Especially designed for minimum maintenance.

For Job Recommendations, complete specifications, and drawings—all part of the latest edition of the 100 page Smith & Loveless lift station Data Manual . . .

WRITE DEPARTMENT 10

S&L Smith & Loveless, Inc.
P. O. BOX 8172 KANSAS CITY, MISSOURI
Manufacturing Plant • Merriam, Kansas

REPRESENTATIVES IN PRINCIPAL CITIES

Seaman-Andwall Buys Mobil-Loader

New Pulvi-Loader is easily attached to any tractor draw-bar, power take-off, and hydraulic system.

Newest addition to the Seaman-Andwall line of road building equipment is the Willimon Mobil-Loader, formerly manufactured by J. R. Prewitt and Sons, of Pleasant Hill, Mo. The machine, a versatile unit designed for digging, loading, mixing and leveling dirt and soil, will be re-named Pulvi-Loader, and will be made at Seaman-Andwall's Milwaukee (Wis.) plant.

Easily attached to any tractor, the Pulvi-Loader is reported to dig a swath 24 inches wide and 6 inches deep, and will discharge to a height of 8 feet. It digs and loads at speeds up to four cubic yards a minute. Special wings, for loading windrows up to 48 inches wide, are detachable for deeper digging.

The new unit can be used to load waste material from ditch cleaning operations, for loading windrows, and for loading and mixing sand, clay, top soil and gravel. It can also be used advantageously for loading snow during winter street clearing operations.

A more detailed description of the Pulvi-Loader is available from SEAMAN-ANDWALL, DEPT. R-242, MILWAUKEE 1, WIS. Write directly or use the Post Card following Page Circle No. 874.

New Chain Saws

Four new chain saws, all designed for increased cutting speed, are offered by LOMBARD, 68 MAIN ST., ASHLAND, MASS. The new units, Models 44, 46, Advanced DD and the 4D, are designed with Spee-Dee gears and offer higher engine power and faster chain speeds. All models are available in 16-, 20- and 24-inch sizes and in the Bow type, as well.

The low-cost Model 44 has a float-type carbureter and will cut in almost any position, except straight up or down. The 46 is constructed with a pistol grip, and cuts at all angles, in any postion, without special adjustment.

The Advanced DD direct-drive saw is

FREE TRIAL OFFER

on the all-new

Fisher

"Electronic Witch" M-SCOPE Pipe Finder

Try Fisher's new "Electronic Witch" M-SCOPE for 10 days — FREE — !

Test this new pipe and cable finder under YOUR actual working conditions. This advanced instrument outperforms any pipe locator on the market regardless of price or design!

Simply state on your company's purchase order that you want the Fisher 10 day FREE TRIAL OFFER. Trial period begins the day the instrument arrives. Your only expense is the nominal shipping charges.

ONLY $172.50
with indestructible Fiberglas cabinets

100% ACCEPTANCE
Last year, a full 100% of those who took the "Electronic Witch" on trial purchased the instrument.

FREE 1956 CATALOG

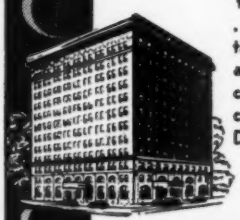
FISHER
Research Laboratory, Inc.
Dept. AC-1, Palo Alto, Calif.

Geophysical Instruments Since 1932

Tops in Everything

ONVENIENT

MEMBER DINERS CLUB



Ideally located in St. Louis, two short blocks from the Union Station and in the center of the Wholesale District . . . Preferred, always by experienced travelers because of its outstanding advantages— Every room with combination tub and shower . . . and circulating ice water. Delicious food . . . cheerful service.

AIR-CONDITIONED ROOMS

350 rooms from $3.50

HOTEL LARIDGE

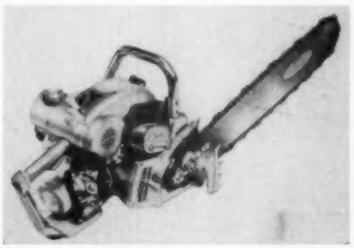
ERNIE SIMONS General Manager

LOCUST ST. AT EIGHTEENTH

Free Parking

ST. LOUIS

available with either a float or diaphragm carbureter, and is especially recommended for small or soft timber. Model 4D



which cuts in any position, has an efficient spade-grip handle.

Further information on any of the new Lombard chain saws may be obtained from the manufacturer, or you may use the Post Card on the insert following Page 52. Circle No. 876.

New, Heavy-Duty Maintenance Trucks

Cities can use these new, heavy-duty trucks all-year-round for handling a variety of hauling and maintenance jobs. The trucks in the all-wheel-drive series are powered by either a Continental 427-cubic-inch gasoline engine or a Cummins JT-600 diesel engine; feature an 8½-cubic-yard gravel dump body; and are designed to carry a payload of 18,000 pounds on the front axle. They are constructed for mounting an underbody blade for grading operations, or a large sander body and underbody blade for winter street maintenance and ice control.

Also featured in the new series is a short wheelbase of 144 inches and Vickers power steering. Thus, the trucks

are easily maneuvered for spotting loads, and are easy to handle in heavy traffic.

A more detailed description of the new truck series may be obtained from OSHKOSH MOTOR TRUCK, INC., OSHKOSH, WIS. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 899.

PARCOA provides...

A NEW CONCEPT FOR OFF-STREET PARKING

AUTOMATIC PARKING features...

- ★ **FLEXIBILITY OF CONTROLS**—Choice of exclusive coded "card-keys", coins, tokens or any combination.
- ★ **NO ATTENDANTS NEEDED**—Pays for itself.
- ★ **SIMPLICITY OF OPERATION**
- ★ **MINIMUM MAINTENANCE**
- ★ **LOW INITIAL INVESTMENT**
- ★ **SAFETY . . . DEPENDABILITY**

Write for descriptive literature.

PARCOA

Division of Johnson Fare Box Company

4619 N. Ravenswood Ave., Chicago 40, Ill.
Phone LOngbeach 1-0217
Sales and Service Offices in Major Cities listed under BOWSER, Inc.

SterElators by Everson

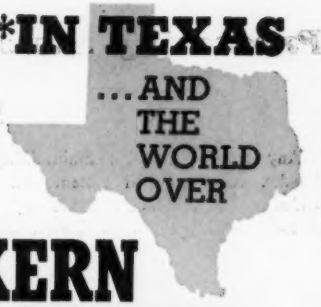
Chlorine Gas Control Equipment
Visible Flow Indication
Vacuum Solution Feed
for
Water Works
•
Sewage Treatment
•
Industrial Plants
•
Swimming Pools
•
Easy to Install
•
Easy to Operate
•
Low Maintenance Cost
•

Everson STERELATORS can be furnished for fully automatic, semi-automatic and manual control

Write for STERELATOR Bulletins

EVERSON MFG. CORP.
203 W. Huron St., Chicago 10, Ill.

***IN TEXAS**

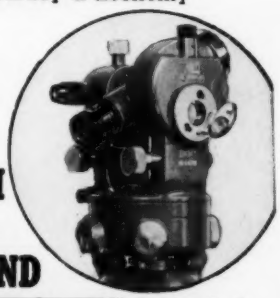


...AND THE WORLD OVER

KERN SURVEYING INSTRUMENTS

***The Bridge Division of the State of Texas Highway Dept. uses Kern Instruments**

WORLD FAMOUS FOR
Working Speed
Operational Simplicity
Accuracy & Economy



DKMI TEN SECOND THEODOLITE *(with optical micrometer)*

- **Exceptional portability and precision.**
- **Readings automatically . . . AT A GLANCE.**
- **Direct reading to 10". Estimation to 1". Average working accuracy —3-4 secs.**
- **Can be used with electric lighting unit for night work.**

KERN CENTERING TRIPOD

Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.

★

Write for Brochure DK 518 -10

PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL

Kern SWISS

The FINEST in SURVEYING EQUIPMENT

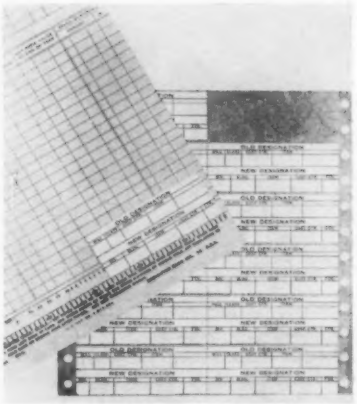
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N. Y.

Kardex Cards Brought Quickly to Date

Any municipal office maintaining a Kardex visible record system can use self-adhesive tabulabels made by the AVERY ADHESIVE LABEL CORP., MONROVIA, CALIF.

An example of the effectiveness of tabulabels was pointed out recently when they were used to correct and bring up-to-date property record cards. Each tabulabel was duplicated opposite the center perforation, and both were imprinted with the old and new designations in one trip through the tabulator.

Because cards and tabulabels were printed in the order in which the visible record cards were filed, the labels were quickly affixed. In addition, the label design provided for the old designation to be shown in the upper, non-visible portion of the card. This facilitated positive identification for comparison purposes during the changeover.

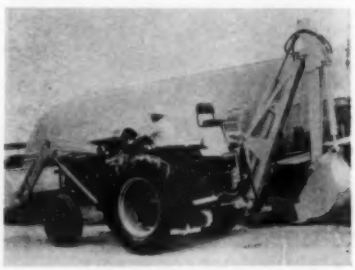


Details on tabulabels and how they will help your city keep accurate records, may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 52. Circle No. 886.

TRINITY VALLEY
for all CAST IRON WATER WORKS FITTINGS
Available On Order
AWWA Standard Bell Spigot Watermain Fittings—24 through 36 inch.
Ring Tite Fitting 3" thru 12"
Available Immediately From Stock
AWWA Approved Short Body and Mechanical Joint Watermain Fittings—2 through 12 inch.
AWWA Standard Bell Spigot Watermain Fittings—2 through 24 inch.
TRINITY VALLEY IRON AND STEEL CO.
PE 7-3141
Fort Worth, Texas
P. O. Box 664

Loader and Backhoe for I-H Tractor

The well-known Davis loader and the Davis backhoe have recently been adapted for mounting on the new International 300 Utility LP gas model tractor, according to MID-WESTERN INDUSTRIES, INC., DEPT. A, 1009 SOUTH WEST ST., WICHITA, KANS. Both attachments utilize



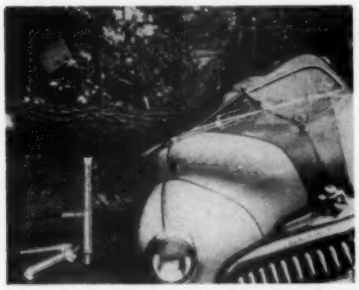
a common hydraulic system, and their framework fits together so that they actually form a protective cradle around the tractor.

The Model 102 loader features an 11-cubic-foot material bucket with multiple attachments, increasing its usefulness on a variety of municipal applications. The Model 185 backhoe digs 13 feet deep at any spot on a 180° arc. It has an exclusive right-angle digging feature, an operator seat and controls that revolve with the boom, and an extra wide frame with two individually-controlled hydraulic

stabilizer feet for leveling up on slopes.

Further information on the Davis loader and the Davis backhoe attachment may be obtained directly from Mid-Western Industries, Inc., or you may use the Post Card on the insert following Page 52. Circle No. 875.

Kits of Rescue Tools



Releasing victims from wrecked vehicles is easier when rescue crews are equipped with a Porto-Power Kit.

To avoid the hazards often encountered in releasing victims trapped in wrecked vehicles, the Blackhawk Mfg. Co. recently introduced a line of hydraulically-operated rescue equipment. Called the Porto-Power line, the equipment is available in kits which include a hand-operated pump and a ram, joined by a flexible hose. This hose permits remote control of the ram.

The kits contain selected attachments which thread onto the ram to harness it for lifting, pushing, pulling, spreading, clamping and pressing. All equipment can be quickly assembled into hundreds of combinations.

Four kits are offered in 4-, 10- and 20-ton" power packages." Other hydraulic tools are available up to 100 tons. Each type is designed for a specific range of rescue work. None, reports the manufacturer, requires an outside source of power.

A new combination catalog and manual, RH-300, pictures Porto-Power combinations which can be assembled at a disaster spot. It also shows the equipment raising wrecked beams and debris, bracing walls and tunnels, spreading truck cabs, opening passenger car doors, rescuing train wreck victims, lifting concrete slabs and fallen roofs and machines, opening steel doors, and lifting street cars and jammed elevators.

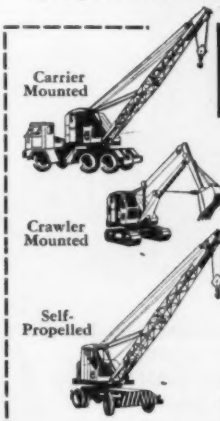
For your copy of *Manual HR-300*, write BLACKHAWK MFG. CO., 5325 W. ROGERS ST., MILWAUKEE 46, WIS., or you may use the Post Card located for your convenience on the insert following Page 52. Circle No. 902.

One BANTAM at one low cost gives you this complete job range!

It's the amazing versatility of the BANTAM—its unique ability to cut time and costs on so many jobs—that has made it the preferred piece of equipment of hundreds of towns and cities—and in just a few short years! Priced low, BANTAM saves the cost of many single-purpose machines!

Scattered jobs and tight working spots are made to order for the BANTAM. You have the time-saving mobility that puts all jobs "next door"—plus the ideal size that makes a snap of working on busy streets, alleys or in the field. Backing up BANTAM's get-around ease is work-speeding performance with nine fast-change attachments that make shorter work of all jobs. BANTAMS have fast cycle and easy control . . . power up and power lowering for safe, pinpoint spotting of loads . . . big brakes and clutches . . . anti-friction bearings. BANTAM is built in Carrier, Crawler and Self-Propelled models—10,000-lb. to 14,000-lb. lifting capacities—90 yd. to 100 cu. yd. per hour digging production.

See your BANTAM distributor for demonstration, or mail coupon.



SCHIELD Bantam Co.

SCHIELD BANTAM CO. AC-62
234 Park Street
Waverly, Iowa, U.S.A.

Please send me facts on the job-speeding BANTAM:
☐ Carrier Mounted ☐ Crawler Mounted ☐ Self-Propelled

Name.....Title.....

Address.....

City.....State.....

World's Largest Producer of Truck Cranes and Excavators

New Fire Gun Has Safety Check

Where street construction and other municipal operations call for an oil burning utility torch, specify the dependable Hauck fire-gun. This efficient device may be used for heating, drying, melting, thawing, burning and disenfecting chores. It has recently been improved by the addition of an automatic safety pressure check which prevents additional pressure from entering the fuel tank once it has been filled.

The portable unit will burn either kerosene or light fuel oil or, if desired, can be furnished to burn gasoline. It produces a powerful, smokeless, controlled 2,000° F. flame designed to reduce labor on any heating job. The complete outfit is available in two sizes, with a 4- or 5-gallon fuel tank, seamless steel coil burner, pressure gauge and safety check, brass hand pump, and 6-foot length of oil-resisting hose.

A more detailed description of the

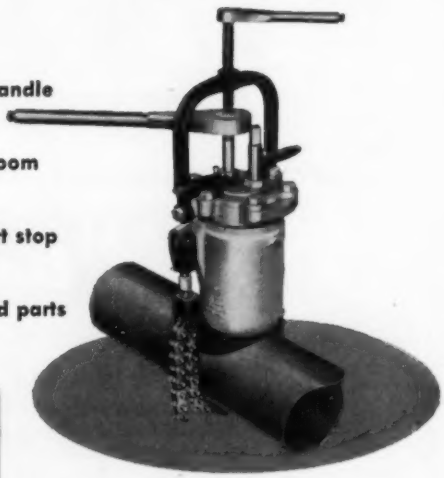
improved fire gun may be obtained from HAUCK MFG. CO., 111-121 TENTH ST., BROOKLYN 15, N. Y. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 878.

WANT THE BEST?

HAYS MODEL B

Aluminum Alloy Tapping Machine

- Designed for the man in the ditch
- A third less weight to handle
- Requires less time
- Requires less working room
- Easier to operate
- No disassembly to insert stop
- Positive grip on main
- Renewable bearings and parts
- Complete with chest



Your HAYS distributor or our representative will be glad to demonstrate the Model B . . . or write to us about one for a trial on the job by your own men.

Join the A. W. W. A. HAYS is one of the eleven Charter Members of the Manufacturers Section of the American Water Works Association.

HAYS

WATER WORKS PRODUCTS

HAYS MANUFACTURING CO.

ERIE, PA.

Ice Rink Floor Provides Year-Round Recreation

This model of a Carpenter Monolithic Floating Floor and Piping System was exhibited at the International Recreation Congress at the Bellevue-Stratford Hotel, Philadelphia, from September 30 to October 5, 1956.

The versatile floor structure has been in constant use without floor repairs in

Playland, Rye, N. Y., for 26 years. Similarly, the first outdoor installation in Rockefeller Center Plaza, N. Y., is completing its 17th year. Another Carpenter floor, in the Wollman rink in New York's Central Park, installed in 1950, continues to draw an unprecedented number of skaters. This floor is used as a playground and for roller skating in the office seasons.

Interested communities can get full in-

formation on Carpenter floors from CARPENTER MONOLITHIC ICE RINK FLOOR, 1560 ANSEL RD., CLEVELAND 6, OHIO. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 882.

Drinking Fountains

Latest addition to the Haws line of drinking facilities is this stainless steel fountain designed for use in schools, hospitals and other public buildings. The new drinking fountain, Model 7W, is conveniently compact and features rounded surfaces. This design hides wastes and supply fixtures, and permits easy cleaning and maintenance.

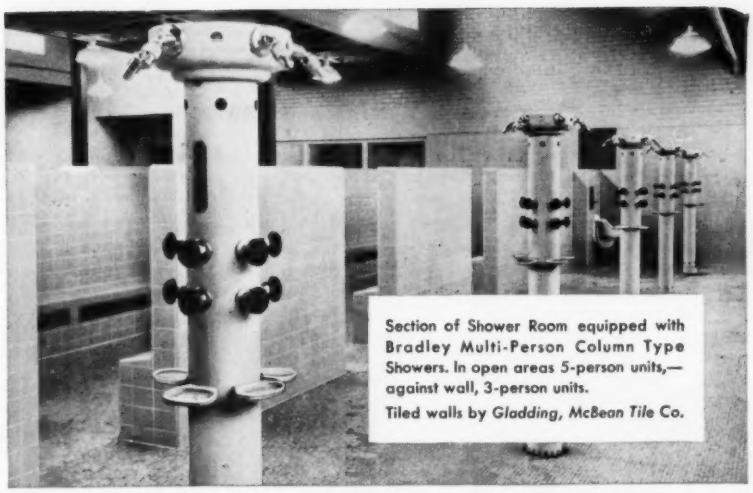
Included in every Model 7W fountain is a Haws automatic flow control valve complete with lever handle. The valve

assures a constant, pressure controlled angle stream. The chrome-plated brass fountain head is raised and shielded to eliminate direct mouth contact.

More detailed information on the new drinking fountains may be obtained from HAWS DRINKING FAUCET CO., FOURTH AND PAGE STS., BERKELEY 10, CALIF. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 888.

Engineering Firm Reorganizes

The firm of Polk, Powell and Hendon, consulting engineers, Birmingham, Ala., will hereafter be known as Harry Hendon and Associates, according to a recent announcement. Mr. Hendon will be aided by two associates, Lewis E. Hoffmann and Afton B. Jowers. Both men are senior members of the original engineering staff.



Section of Shower Room equipped with Bradley Multi-Person Column Type Showers. In open areas 5-person units,—against wall, 3-person units.
Tiled walls by *Gladding, McBean Tile Co.*

Here is a Typical Modern Sanitary Shower Room

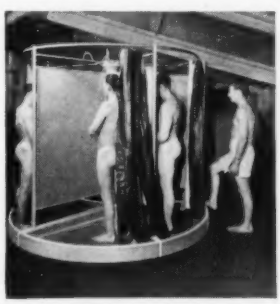
▼

Ideal for Recreational Buildings, Parks, Swimming Pools, Fire and Police Departments

Here is the means of providing modern sanitary Showers, in less space, at lower cost with lower maintenance . . . One centrally located Bradley Column Shower provides for five bathers simultaneously, with each bather having full control of the temperature and volume of the water.

Only *three* piping connections are required for each 5-unit Shower, cutting installation costs and time, for each *one* replaces 5 conventional shower stalls with their 15 piping connections.

For installation at wall, Bradley Multi-Person Showers are available with three shower heads,—or if placed in otherwise wasted corner space, with two. Partitions to separate the stalls are available,—with or without curtains.



SAME COLUMN but with Partitions
Bradley Showers with Partitions and Curtains provide privacy if desired. 5-Stall Unit with Receptors.

Complete specifications on Showers and Bradley Washfountains are contained in Catalog 5601. Write for a copy today. **BRADLEY WASHFOUNTAIN CO.,** 2333 W. Michigan St., Milwaukee 1, Wis.

BRADLEY *multi-person* **SHOWERS**

Distributed Through Plumbing Wholesalers

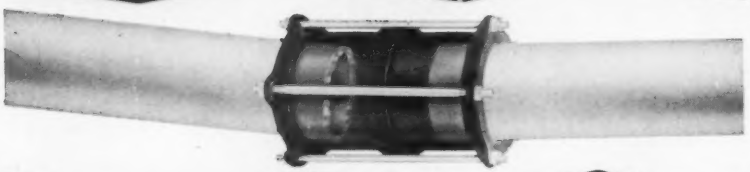
Makes Five Copies A Minute

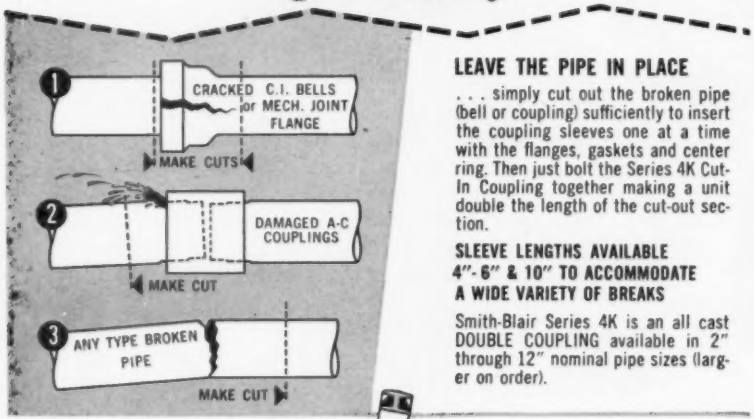
Now you can simplify paperwork and, at the same time, cut retyping expense and speed communications in all municipal offices with the Verifax Signet Copier, a low-cost copying machine offered by the RECORDAK CORP., DEPT. BB-9, 415 MADISON AVE., NEW YORK 17, N. Y. The Signet Copier will quickly reproduce anything typed, written or drawn, including letters, reports, clippings and legal documents. It makes five copies in less than a minute, for as little as 2½ cents each.

With the Signet, you can make copies on both sides of standard copy paper, on pre-printed office forms, and on film, too. The Verifax copies are easy to read, handle and file, and are photo-exact from letterhead to signatures.

Additional details on the Signet Copier may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 52. Circle No. 896.

CUT-OUT THE BREAKS WITH SMITH-BLAIR CUT-IN COUPLINGS





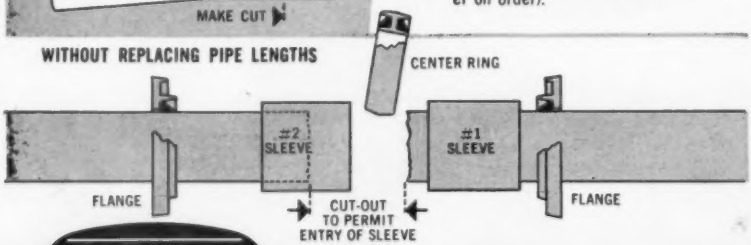
LEAVE THE PIPE IN PLACE

. . . simply cut out the broken pipe (bell or coupling) sufficiently to insert the coupling sleeves one at a time with the flanges, gaskets and center ring. Then just bolt the Series 4K Cut-In Coupling together making a unit double the length of the cut-out section.

SLEEVE LENGTHS AVAILABLE 4"-6" & 10" TO ACCOMMODATE A WIDE VARIETY OF BREAKS

Smith-Blair Series 4K is an all cast DOUBLE COUPLING available in 2" through 12" nominal pipe sizes (larger on order).

WITHOUT REPLACING PIPE LENGTHS



SMITH BLAIR INC.

SERIES 4K CAST CUT-IN COUPLINGS

SMITH-BLAIR, Inc.
535 Railroad Ave., So. SAN FRANCISCO, Calif.
● BRANCHES
5635 E. Imperial Highway, SOUTH GATE, Calif.
W. Newton Road, GREENSBURG, Pennsylvania

WATER • OIL • GAS
WRITE FOR FREE BULLETINS

New Steel Building to Store Rock Salt

The International Salt Co., largest domestic salt producer, is expanding its upstate New York mine at Retsof, near Rochester, by adding a 28,800-square-foot steel storage building, according to T. F. Courthope, general manager of the mine. The new building was designed by the LURIA ENGINEERING CO., OF BETHLEHEM, PA. Scheduled to be placed in operation in time to meet the heavy cold-weather demand for rock salt, it will have a storage capacity of 35,000 tons of loose salt.

Advance Notice of Indoor Fires

When thermal detecting devices operate, a serious fire already exists. Why wait for dangerous temperatures to build up when the presence of smoke, heat or flame is unnecessary for an alarm? Pyr-a-larm is actuated by the products of combustion before the fire has a chance to develop dangerous temperatures. Detector heads contain a sensitive gas discharge (cold cathode) tube plus two ionization chambers. In each chamber is a tiny foil of radium.

Combustion gases entering the outer chamber cause a voltage increase sufficient to ignite the cold cathode tube, making it electrically conductive, thus operating relays which can set off visual

and/or audible alarms, close fire doors, of actuate a fire-extinguishing system.

For additional information write PYROTRONICS, DIVISION OF BAKER INDUSTRIES, INC., P. O. BOX 390, NEWARK 1, N. J., or you may use the Post Card on the insert following Page 52. Circle No. 883.

New Plant to Make Asbestos-Cement Pipe

Plans to construct another new Transite asbestos-cement plant to be located at Denison, Tex., are announced by A. R. Fisher, president of the Johns-Manville Corp., 22 E. 40th St., New York 16, N. Y. The new plant will be J-M's seventh Transite pipe facility. It will cover 350,000 square feet located on a 400-acre tract of land.

According to Mr. Fisher, the Denison plant is part of an approximate $40 million Transite pipe expansion program initiated by the company this year. Ground has already been broken for a large plant in Stockton, Calif., and additional pipe production facilities have been or are being installed at J-M plants in Marrero, La.; Waukegan, Ill.; Watson, Calif.; and Manville, N. J.

Portland Cement Opens Five New Offices

From the Portland Cement Association, Dept. 9-4, 33 W. Grand Ave., Chicago 10, Ill., comes news of the opening of five new offices, and of an expansion of the Association's field services to cement users.

A new regional office has been opened by the Association in Los Angeles, Calif., to supervise the activities of district offices in Los Angeles and Seattle, Wash. New district offices have been opened in Baltimore, Md.; Trenton, N. J.; Portland, Me.; and Louisville, Ky.

L-M Announces New West Coast Plant

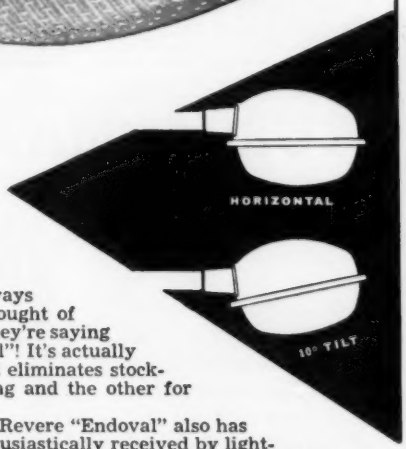
Plans to construct a new West Coast production facility in Visalia, Calif., are announced by R. G. Wheaton, president of the Line Material Co., Milwaukee 1, Wis. The new plant will offer L-M's line of Round-Wound distribution transformers, and will be staffed in part by a few key personnel from the firm's transformer plant in Zanesville, Ohio. It is scheduled for completion by May, 1957.

Revere
ELECTRIC MFG. CO. CHICAGO, U.S.A.

The 2 in 1 LUMINAIRE ...that's TOPS in Design and Efficiency

ENDOVAL

UNIQUE REVERSIBLE SLIPFITTER ... Provides 10° TILT AND HORIZONTAL MOUNTING!



Of the good things ... it's always said: "Why hasn't someone thought of that before?" And that's what they're saying about the New Revere "Endoval"! It's actually two luminaires in one—since it eliminates stocking one for horizontal mounting and the other for 10° tilt.

But, that isn't all ... the New Revere "Endoval" also has a host of other advantages enthusiastically received by lighting engineers everywhere. Everything about the Luminaire is precision built! The housing is of precision, die-cast aluminum alloy. The reflector is of one-piece W-Modified Parabolic design which offers sharp, vertical cut-off and proper I.E.S. distribution patterns without the use of lifting prisms. You obtain fullest utilization of lamp output. Reflector cannot be inserted wrong. Perfect alignment assured at all times ... cannot work loose .. no tools needed to release it!

Integrally cast "lift-off" type hinge allows easy removal of glass. Compression-type, die-cast aluminum alloy holding ring allows for expansion and contraction of the glassware without strain. Spring-loaded roller latch automatically clamps lens ring and holds glassware tight — no dust or bugs can enter.

All the above, coupled with lightness in weight, greater strength, more attractive size and shape, finer finish, ample wiring area and simple terminal connections make the New Revere "Endoval" tops in design — tops in performance and tops in value. Investigate today. Write for Brochure 700-9.

REVERE ELECTRIC MFG. CO. • 6009-17 BROADWAY • CHICAGO 40, ILL.
Available in Canada thru Curtis Lighting, Ltd., Leaside, Toronto, Ontario

THE ONLY COMPLETE LINE OF LUMINAIRES - FLOODLIGHTS AND POLES FOR STREET - SPORTS AIRPORT - SERVICE STATION - OUTDOOR THEATRE - MARINE AND INDUSTRIAL LIGHTING

Automation Parking Pays Big Revenues

WRRS
ELECTRIC PARKING GATES

Eliminate Labor Costs—Easy to Operate

Municipalities and parking operators find that Automation Parking with WRRS Gates pays big revenues. It results from low installation costs, practically no maintenance costs, and no labor costs—the biggest cost of parking lot operation. And it's a simple matter to make periodic collections at one or two coin boxes.

This is the answer to off-the-street parking problems. WRRS Gates operate with Remote Controls, using coins, tokens, keys, or any combination of these methods. WRRS Gates are safe, function in all types of weather, and are built to last 20 to 30 years.

Send us a diagram of your lot, and receive, without obligation, a parking plan and cost estimate.

MADE BY THE BUILDER OF 10,000 RAILROAD CROSSING GATES 5877

WESTERN RAILROAD SUPPLY COMPANY

General Offices and Factory
2430 S. Ashland Ave. • Chicago 8, Ill.
IN CNAADA: Cameron, Grant, Inc.
465 St. John Street, Montreal 1, Quebec, Canada

TURCO MAXI-POWER
Sewer Cleaning Units

Made for a City's Operation

A Unit consists of two of these economical machines which handle every Sewer-Cleaning job. They do it faster with the aim of original full flow. As one City Manager reported his Turbine Sewer cleaner cleaned 72 blocks of sewers in a season.

Write now for free catalog.

SIMPLE
RUGGED
ECONOMICAL

STIFF LEGS—HYDRAULIC
Mounted beyond the vertical line of cable and compensates for uneven ground. Quickly adjustable.

Turbine Sewer Machine Co.
Div. of Chas. H. Stehling Company
1303 North Fourth St. **Milwaukee 12, Wis.**

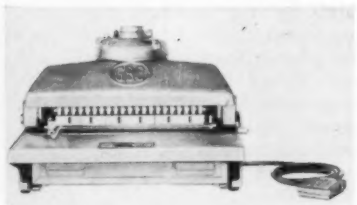
Purchasing

Sound-Powered Telephones

Whenever your city needs self-powered communication—at pumping stations, airports and parks, and for police and fire rescue squards—this sound-powered telephone system meets all requirements. The system is powered solely by the "users' voice," and is effective for distances of 30 miles and over. It requires minimum maintenance for a long, useful life.

Sound-powered telephone systems for municipal applications are fully described in *Folder* 400C. For your copy, write the UNITED STATES INSTRUMENT CORP., CHARLOTTESVILLE, VA., or you may use the Post Card on the insert following Page 52, Circle No. 903.

For Binding Your Papers



Power-A-Matic rectangular hole punch requires only 1½ square feet of space, and has a punching area of 12 inches.

A new portable electric tool, Power-A-Matic, punches rectangular holes in sheets of paper to be bound with the General Binding Corporation's plastic binding equipment or metal loose leaf folders.

For full details on this low-cost electric power punch, write GENERAL BINDING CORP., 812 W. BELMONT AVE., CHICAGO 14. ILL., or you may use the Post Card on the insert following Page 52. Circle No. 890.

New Telemetering System for Water, Sewage Plants

This new system of telemetering transmitter and receivers, and electronic self-balancing instruments, can be used in water works, sewage treatment plants, and wherever there is a need for corrected flow values. The instruments are designed to totalize several flow measurements, correct for such factors as temperature, pressure, specific gravity and supercompressibility in fluids, and to pro-

vide a corrected flow value. They are available from the BRISTOL CO., WATERBURY 20, CONN.

Bristol telemetering instruments may be obtained in a variety of types for averaging, totalizing, multiplying and dividing computations involving basic measured variables. In addition, there are systems which will extract square root values, obtain the square of the reading, or compensate for a particular mathematical law.

All computing systems are constructed to fit a specific set of requirements from standard Bristol Metameter measuring transmitters. For full details, write the company directly, or you may use the Post Card located for your convenience on the insert following Page 52. Circle No. 893.

Steel Tree Guards

At Lafayette Courts, a low-cost housing project in Baltimore City, Md., newly-planted trees are protected by these rugged, steel tree guards made by the WHEELING CORRUGATING CO., WHEELING, W. VA. The guards are furnished complete with nuts and bolts, and are easy

to assemble. The posts have pointed ends so that they are quickly pounded into the ground.

Made of galvanized Wheeling expanded metal, the new tree guards won't rust and can be painted over. They measure 18 inches in diameter, have a 60-inch mesh height, and are reported to be 88 inches overall.

Additional data on Wheeling tree guards may be obtained directly from the manufacturer, or you may use the Post Card that is located for your convenience on the insert following Page 52. Circle No. 870.

Push-Button Power for FAST Snow Removal!

GRAVELY Snow Plow or Snowblower with SELF STARTER!

Now just touch your toe to power—new Gravely Self-Starter gives you instant power for the toughest snow removal jobs. The Gravely is the only small tractor that gives you a choice of ALL THREE snow removal tools—Snow Plow, Snowblower, or Power Brush—interchangeable in a moment to suit your job.

Quickly transported from job to job, the Gravely's power and ability to move snow FAST has been proved by thousands of hours of use by Cities, Parks and Industries everywhere.

NEW STEERING SULKY . . .

A New Experience in POWER MOWING

Snow removal is only one of the jobs the Gravely does better, faster, easier. Now with 23 attachments, the Gravely offers you Gang Mowers, 75-inch cut, guided by the new Gravely Steering Sulky that makes handling Gang Mowers so easy a child can do it . . . with unsurpassed maneuverability, at a low, low price!

Let's Show You What the Gravely Can Do for YOU . . .

WRITE FOR LITERATURE . . . OR FREE DEMONSTRATION

GRAVELY TRACTORS, INC.

BOX 73 **DUNBAR, WEST VIRGINIA**

Versatile

"GUNITE"

FOR REPAIRS TO SEWAGE DISPOSAL PLANT

Before

After

The existing concrete on this sewage disposal plant in western New York had deteriorated to an alarming extent and necessitated the rebuilding of practically the entire plant above ground. The pictures above are evidence that "Gunite" repair is not only practical but that it resulted in complete restoration of the plant.

On job after job, "Gunite" proves its worth. Our engineers will inspect your facilities and make recommendations for repairs without obligation on your part.

Engineers: For detailed information on "Gunite" the versatile repair material for all types of concrete structures, send for our 48 page bulletin. Please use the coupon. Mail to

PRESSURE CONCRETE CO.

Dept. AC

"GUNITE" Contractors and Engineers

315 S. Court St., Florence, Alabama

33 N. LaSalle St., Chicago, Ill.

193 Emmet St., Newark, New Jersey

Pressure Concrete Co.
315 S. Court St.
Florence, Ala.

Please send me the 48 page bulletin.

Name .....

Company .....

Address .....

City..... Zone.... State.....

MAIL TODAY AC

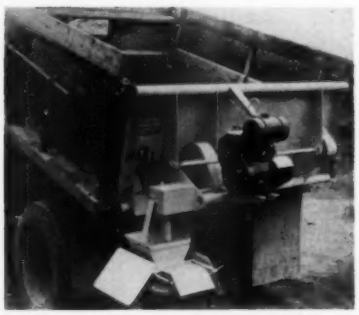
Purchasing News

Salt Spreader Gets Automatic Clutch

A new, automatic clutch is simplifying the operation of the chemical and grit spreaders made by the Fairfield Engineering Co. These mechanical spreaders, mounted on the tailgates of open trucks containing chemical salts or grit, are now widely used to deposit de-icing materials on slippery streets and roads.

The new automatic, centrifugal clutch, transmitting power from the engine to the spreader, was designed by the Mercury Clutch Division, Automatic Steel Products, Inc., Canton, Ohio. It applies power smoothly, permits no-load starting of the spreader mechanism, and insures a steady flow of the chemical without jamming or stalling the motor. Should an excessive load or frozen chunks of de-icing materials enter the spreader, the clutch slips instantly, eliminating the possibility of damage to the engine.

A more detailed description of these



efficient chemical and grit spreaders, may be obtained from the FAIRFIELD ENGINEERING CO., MARION, OHIO. Write directly, or you may use Post Card on the insert following Page 52. Circle No. 879.

Proposed Merger

Plans for a merger of the J. I. Case Co., Racine, Wis., and the American Tractor Corp., Churubusco, Ind., are announced by J. T. Brown, president of Case, and Marc B. Rojtman, president of American Tractor. The proposed merger would give Case a diversified line

SAVE MONEY
SEND US YOUR ORDERS FOR ROTARY SWEEPER NEW BROOM CORES

Do You Know We Manufacture NEW Cores of the following Types:

- Grace (3 types)
- Hough
- M-B (Mell-Blumberg)
- Detroit-Harvester
- Fordson
- Rosco
- Little Giant
- Huber
- Lull
- Spearswell

and other popular makes

YES! We Can Make Cores to Your Specification

We Rebuild—Repair—Refill All Makes and Sizes of Broom Cores.

Immediate Shipment

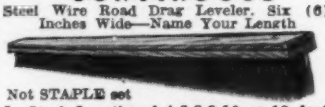
SUGGESTION—To Far-Away Users—Buy your NEW Cores only without any filling or we will furnish complete Palmyra-Hickory or Bass Fibres—Even Steel Wires.

Road Builders—It's Sensational!!

BIG **PECKERWOOD** BIG

C-O-N-T-I-N-U-O-U-S

Steel Wire Road Drag Leveler. Six (6) Inches Wide—Name Your Length

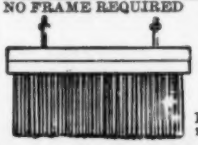


Not STAPLE set

In Stock Lengths of 4-6-8-9-10 or 12 foot. Only $3.50 Foot

"Approx. wt. 5½ lbs. per ft."

NO FRAME REQUIRED



The LITTLE PECKERWOOD 3" Wide, 16" Length This Fits Your Frame

NOTE—Both Drags Can Be Furnished with Fibre. Only $2.50 Ea.

KENNEDY'S

Since **VAN BRUSH MFG. CO., INC.** 1928

327 Southwest Blvd., Kansas City, Mo.

TWO PIECE

sliding or screw type cast iron valve boxes for covering 4" thru 10" valves for water or gas. Rugged construction for lifetime service. 5¼" shaft. Extensions as required.

Adjustable

VALVE BOXES

THREE PIECE

valve boxes supplied with separate bases are available in sliding or screw type. Made with 5¼" and 7" shafts with extensions as required. Complete line of service and roadway boxes.

ALABAMA PIPE CO.

We Invite Inquiries to Our Nearest Sales Office

120 S. Michigan Ave. / 350 Fifth Avenue

Chicago, Illinois / New York 1, New York

General Sales Offices

ANNISTON, ALABAMA

APCO

of crawler tractors and earthmoving equipment. Under the terms of the merger agreement, the companies will operate as the J. I. Case Co.

The American Tractor Corp. is one of the six full-line producers of crawler tractors and equipment in the United States. The J. I. Case Co. manufactures rubber-tired tractors and farm machinery. Together, the companies will offer a diversified line of agricultural, industrial and roadbuilding equipment.

No major changes in personnel are contemplated in the agreement. Mr. Rojtman will take over as executive vice-president and general manager, and the remainder of the American Tractor managerial group will be integrated by Case. Production will continue at J. I. Case plants and the recently expanded Churubusco plant of American Tractor.

Speeds Catch-Basin Cleaning

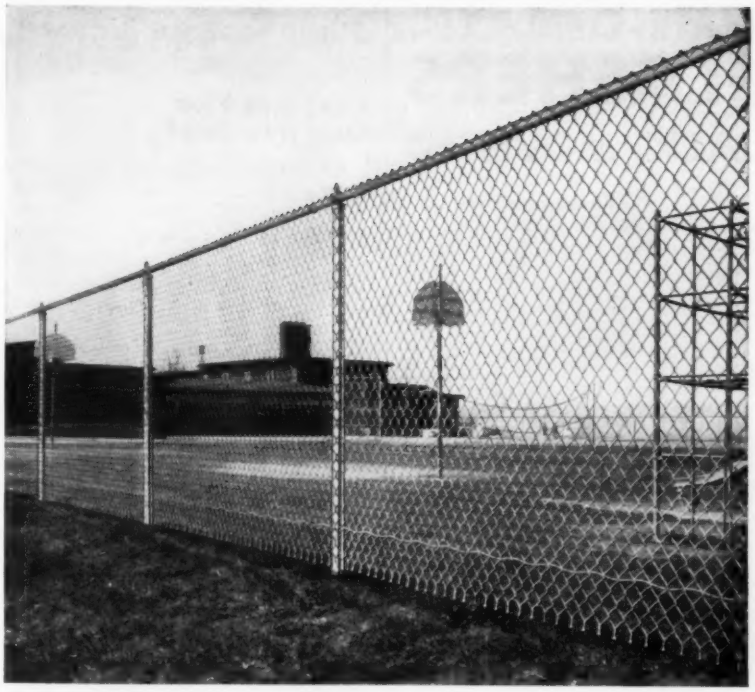
Built as a complete unit, this new catch basin cleaner is quickly mounted on any suitable chassis in less than 30 minutes. The complete "package" can be installed with only four double-bolt assemblies, and is easily operated by one man. It is designed for long years of trouble-free operation at maximum efficiency by the N. P. NELSON IRON WORKS, INC., 850 BLOOMFIELD AVE., CLIFTON, N. J.

The new catch basin cleaner has a power-controlled boom for raising and

swinging. All working operations can be performed simultaneously. The entire digging, swinging and loading cycle takes only seconds to complete.

All buckets on the Nelson unit are hydraulically operated. Orange peel buckets are available in diameters of 13½, 15 and 18 inches, and a clam shell bucket measures 12 x 17 inches. With a self-recoiling hydraulic hose reel, a bucket can be quickly dropped as low as 35 feet below ground.

Further information on the "package" catch basin cleaner may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 52. Circle No. 885.



Anchor Fence stands guard 24 hours a day

Handsome, sturdy Anchor Chain Link Fence gives your school complete safety and protection *night and day*. By day, Anchor keeps pupils safely inside—trespassers and unwanted animals stay out. At night, Anchor stands guard against vandals and intruders—helps preserve an orderly, well-kept appearance.

And this 24-hour protection is low-cost too. Anchor Fence lasts a lifetime—deep driven anchors keep the fence erect and sturdy year after year in all kinds of weather and soil conditions. Anchor needs no annual painting. Insist on Anchor—the fencing zinc-coated *after* weaving, not *before*.

Get *GENUINE* Anchor Fence

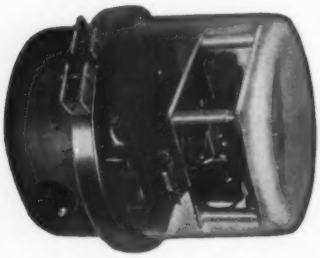
Look for the famous orange-and-black nameplate that means you're getting the finest chain link fence . . . erected by "factory trained" experts. For a free estimate or more information, call your local Anchor office or write: ANCHOR POST PRODUCTS, INC., Fence Division, 6910 Eastern Avenue, Baltimore 24, Maryland.

Anchor Fence®

Division of ANCHOR POST PRODUCTS, *Inc.*

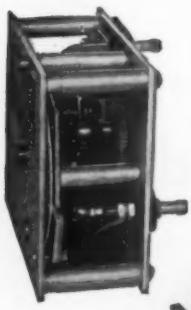
Plants in Baltimore, Md.; Houston, Texas; and Los Angeles, California
Sold direct from Factory Branches and Warehouses in all principal cities

TIME-O-MATIC FLASHERS JACK MOUNTED

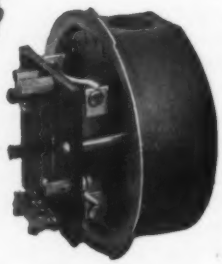


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC

"A Sign of Good Control"

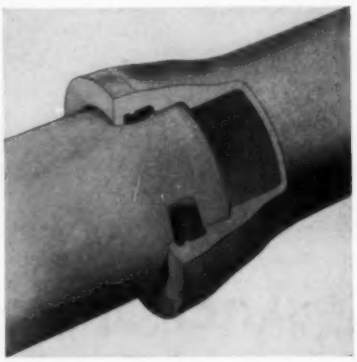
TIME-O-MATIC INC.
P. O. Box 850
1108 Bahls Street
Danville, Illinois

Purchasing News

Cast Iron Pipe Gets New Joint

It's fast and easy to install cast iron water pipe when you're working with the new Tyton joint. This simple, sturdy joint has only one accessory, a circular rubber gasket, and is designed to assure a tight, lasting seal. It is easily assembled—even in a wet trench—without bell holes.

Cast iron pipe with the new Tyton joint is being offered by the U. S. Pipe and Foundry Co. The inside contour of the bell or socket is designed to provide a seat for the circular gasket. An internal bead in the socket fits into the groove in the gasket.



To assemble, the gasket is placed in the socket, and its inside surface is given a light coating of lubricant. The slightly tapered, plain end of the joining pipe is then forced into and seated in the socket. The gasket is compressed by the plain end, and the joint is made up.

Cast iron pipe with its new Tyton joint is discussed in literature from the U. S. Pipe and Foundry Co., 3300 First Ave., North Birmingham 2, Ala. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 871.

Improved Controller for Water, Sewage Plants

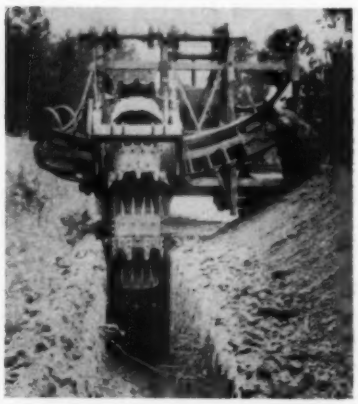
A new switch for controlling hydraulic, cylinder-operated valves in water and sewage treatment plants, is offered by Infilco, Inc., Tucson, Ariz. Called the Type A-D hydraulic switch, it is a pneumatically actuated dual diaphragm, 4-way control valve which can be mounted close to the cylinders. Actuating 3-way air valves may be remotely placed.

The new switch can be used with a "controlled" valve position indicator on an operating panel, or in a console. Either open-shut or open-hold-shut operation is possible. The need for water lines at the console or operating table is eliminated, and head loss due to friction is minimized.

The Type A-D switch is fully described in *Bulletin* 1215. For your copy, write the company directly, or you may use the Post Card on the insert following Page 52. Circle No. 880.

Gar Wood Unveils New Three-Position Ditcher

The position of the digging wheel on the new Gar Wood Buckeye 308-TP ditcher can be shifted to three separate positions—to the left or right of the unit's mainframe, or in line with the mainframe—enabling the machine to dig close to curbs, poles and other obstructions. The machine will dig to within 2¼ inches of the outside edge of either its right- or left-hand crawler. Digging positions can be changed on the field,



without using a crane or special tools.

The new three-position digger will dig a trench up to 5 feet-6 inches deep, and from 8 to 24 inches wide. It features a hydraulic conveyor drive, a hydraulic digging wheel hoist, variable bucket spacing, and a split-shaft excavator drive.

More detailed information on the Buckeye 308-TP may be obtained from Gar Wood Industries, Inc., Wayne, Mich. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 881.

New Trade Name for Orthosolv

Orthosolv, an emulsifiable ortho-dichlorobenzene compound so effective in

controlling offensive odors in sewage treatment, storm sewers, garbage and refuse disposal, has had its name changed to "Ozene," reports the Solvay Process Division. The uses of the product, however, remain the same.

In addition to controlling offensive odors from a wide variety of sources, "Ozene" can be used as an efficient solvent for removing heavy sludge in fuel oil tanks, and for removing greases, tars and oils from engines, floors, machinery, tools and metal parts.

The properties and uses of "Ozene" are fully explained in literature from Solvay Process Division, Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 873.

Fast, Low-Cost Snow Removal

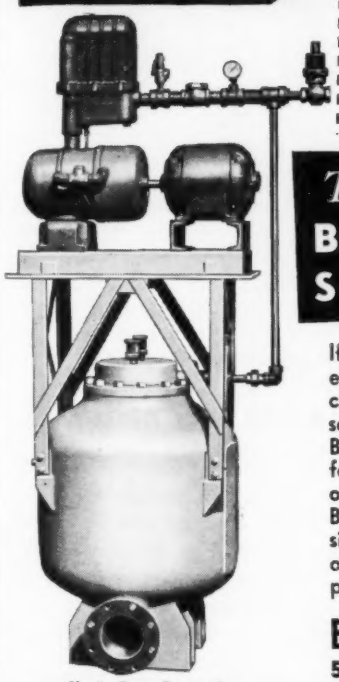
A fast, easy and economical way to remove snow from city streets is with the Bros Model "B" Sno-Flyr, a new rotary snow plow designed for 4-wheel-drive trucks in the 17,000 gvw range. The plow is front-mounted by a universal hitch, and is designed to handle up to 20 tons of snow per minute. Its

casting chute rotates 360°, and will handle hard, wet or chunky snow, and features a capper to control the height of the snow being ejected. Snow can be cast to distances of 75 feet.

Cutting width of the new plow is eight feet, and the unit is powered by an 8-cylinder industrial engine mounted at the rear of the truck chassis. Casting chute rotation and the raising and lowering of the plow are both controlled hydraulically from the inside of the truck cab.

Full facts on the Model "B" Sno-Flyr are available from Wm. Bros. Boiler & Mfg. Co., Road Machinery Division, 1057 Tenth Ave., S.E., Minneapolis 14, Minn. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 900.

LOOK!



Single Type Compact Self-Contained Ejector System

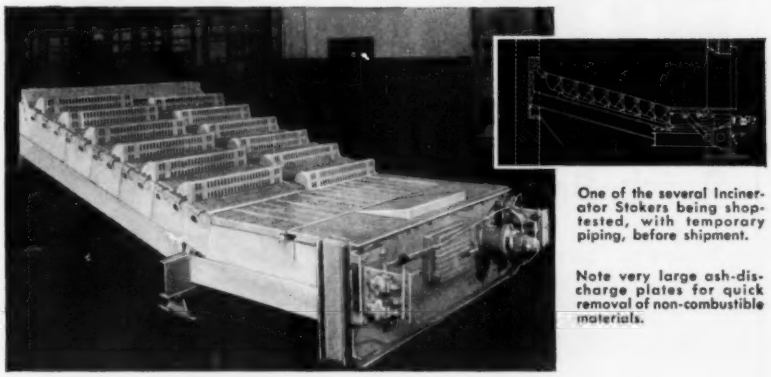
Blackburn-Smith Mfg. Co.
57 Garden Street, Hoboken, N. J.
I want to know how I can get better sewage ejection at lower cost.
Name .....
Company .....
Address .....
.....

The How and Why of
BETTER, LOW COST SEWAGE EJECTION

If you want to get rid of complex piping, to eliminate screens, impellers, shredders, with their clogging and constant costly pump cleaning . . . send the above coupon for our Engineering Bulletin S50. If you want to lift sewage 150 feet at 30 to 500 g.p.m. without failure or mess or big bills . . . you'll want the facts in this Bulletin. Blackburn-Smith Sewage Ejectors in single and twin units are rugged, more economical and sanitary. Their reputation for dependable service is unsurpassed.

BLACKBURN-SMITH MFG. CO., INC.
57 GARDEN ST. HOBOKEN, N. J.
HO 3-4425 • N. Y. Tel., BA 7-0600

AE INCINERATORS HAVE
EXTRA LARGE DUMP-PLATES



One of the several Incinerator Stokers being shop-tested, with temporary piping, before shipment.

Note very large ash-discharge plates for quick removal of non-combustible materials.

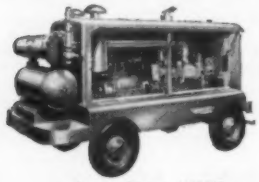
AN EXCLUSIVE FEATURE of the AE Incinerator grates is the extra large dump-plate area. The possibility of clogging is reduced to the absolute minimum when large objects pass through it... American Engineering's years of experience in stoker design and construction is your assurance of trouble-free, economical performance.

Write for full details, today.

AMERICAN ENGINEERING COMPANY
DEPT. S-108, WHEATSHEAF LANE & SEPVIVA ST., PHILADELPHIA 37, PA.
Canadian Subsidiaries: Affiliated Engineering Corporations, Ltd., Montreal, P. Q. . . . Bawden Industries Ltd., Toronto, Ont.

Trenching 7 miles of street, this Jaeger "125" Roto ran two 80 lb. breakers to line-cut and break a 7" top of asphalt over brick—averaged 1200 sq. ft. per 8 hr. day—used only 1½ gals. of fuel per hr.

Jaeger "125" Rotary speeds street work



Jaeger Rotary "600"

Instantaneous air delivery, under close and smoothly modulated control, enables the Roto 125 to maintain 100 lbs. minimum pressure under all demands up to 125 cfm. High efficiency results in slower speed operation, less fuel consumption, longer engine life than any other rotary. See your Jaeger distributor or ask for Catalog JCR5.

THE JAEGER MACHINE COMPANY 505 Dublin Ave., Columbus 16 Ohio

LOADER • PUMPS • MIXERS • TRUCK MIXERS • PAVING MACHINES

STEEL

Every Kind

Quick Delivery

Plates, Structurals, Bars, Sheets, Tubes, etc. Carbon, Alloy, Stainless Steels, Babbitt Metal.

RYERSON

Joseph T. Ryerson & Son, Inc. Plants at: New York, Boston, Wallingford, Conn., Philadelphia, Charlotte, N. C., Cincinnati, Cleveland, Detroit, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco, Spokane, Seattle.

UNDERGROUND PIPING JOBS DONE IN LESS TIME AT LOWER COSTS

Here's the quick, simple way to install pipe under streets, walks, tracks, floors and lawns. With a GREENLEE Pipe Pusher *one man* pushes pipe *under* obstacles. No tearing up concrete, lawns, floors. Eliminates extensive ditching . . . no tedious tunneling, back-filling, repaving. Cuts job time to a fraction . . . GREENLEE Pipe Pusher often pays for itself on first job. Get facts today.

GREENLEE

Greenlee Tool Co., 2030 Columbia Ave., Rockford, Ill.

Purchasing

Precision-Built Shovel

The Yumbo hydraulic shovel is a high-class, precision-built instrument with ball-bearing turntable, simplicity of design, heavy-duty construction, and fast, positive hydraulic action. Developed over seven years ago in Italy, the Yumbo has proved successful all over the world.

The Yumbo turntable unit, made and assembled in Germany, is of the finest steel and guaranteed for one year. This ball-bearing turntable eliminates center

pins, turntable rollers, adjustment and lining up of rings, and external exposed gears.

There are only 4 operating controls on the entire machine, and all levers are double action. The Yumbo is self-braking, all brakes and clutches are eliminated. This heavy-duty hydraulic system can be serviced in 10 minutes a day; one man can change attachments in 10 minutes. No expensive truck or carrier is required.

For additional information, write GECO INC., 5701 COLORADO BLVD., P. O. BOX 177, DENVER, COLO., or you may use the Post Card on the insert following Page 52. Circle No. 892.

New Street Sweepers for Detroit

Five more street sweepers have been ordered from the Wayne Mfg. Co., by the City of Detroit, bringing its fleet of Wayne units to 32.

The new sweepers are reported to sweep up to 30 miles a day, and will handle a full three cubic yards of dirt. Loads are delivered to the dumping point at traffic speed. Special dual con-

trols on the new sweepers enable them to sweep divided highways and one-way streets quickly and efficiently.

Wayne's representative in Detroit is the Telford Equipment Co. Main offices of the Wayne Mfg. Co. are located at 1201 E. Lexington St., Pomona, Calif.

Portable Megaphone Has ½-Mile Range

Whenever policemen, firemen and other city employees are faced with the problem of reaching large groups instantly and clearly, they can depend on the new Audio Hailer. This portable, electronic megaphone amplifies speech 1,000 times, and has an effective range up to ½-mile. Designed for one-man operation, it weighs only 5½ pounds, and features a self-contained vacuum-tube amplifier operating on standard dry batteries.

The Audio Hailer is a product of the AUDIO EQUIPMENT CO., INC., 805 MIDDLE NECK RD., GREAT NECK, N. Y. For additional data, write the manufacturer directly, or you may use the Post Card on the insert following Page 52. Circle No. 884.

Electric Power Where You Need It

Wherever emergency electric power is needed, you can depend on these mobile generators to come to the rescue. The efficient generating set is housed in a tractor-trailer unit that can be quickly transported to any location. It is equally useful as standby power in schools, hos-

(*Continued on Page* 244)

"Buying on price alone is like marrying for beauty—regret is just a matter of time."

We consider ease of operation, maintenance, service and life of the valve equally important and engineer our valves in line with this thinking. That's why some of our valves have been in continual use for over 45 years and are still operating at peak performance!

Technical bulletins, describing each of our valves in detail, gladly sent on request.

GOLDEN ANDERSON Valve Specialty Company

1200 RIDGE AVE., PITTSBURGH 33, PA.

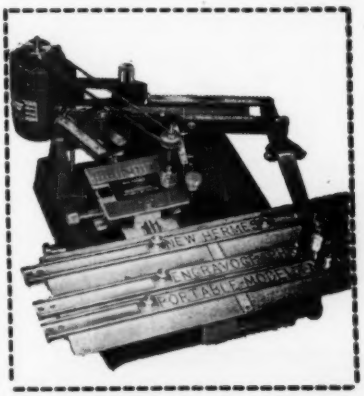
Designers and Manufacturers of VALVES FOR AUTOMATION

engrave your own signs

MARKERS

NAMEPLATES

right on the premises



Portable machine, so simple to operate by anyone

- **Make permanent attractive signs at less cost.**
- **Engraves on plastics, wood or metals.**
- **Tested and approved by City Departments.**

For complete information write Dept. 87

NEW HERMES
ENGRAVING MACHINE CORPORATION
13-19 University Place • New York 3, N.Y.

CONCRETE REPAIRS
THE MODERN WAY

True GUN-ALL
Wet-mix
pneumatic concrete

SIMPLE TO OPERATE

EASILY MOVED FROM JOB TO JOB

USES ONLY MATERIAL ACTUALLY NEEDED

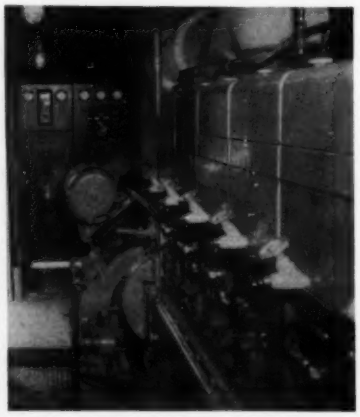
WRITE
WIRE
PHONE

TRUE GUN-ALL EQUIPMENT CORPORATION
P. O. Box 2526 • Tulsa, Oklahoma

Purchasing News

pitals and other municipal applications.

The new generating sets are available in 350- and 500-kw sizes, and are built into Fruehauf trailers. They are hauled



by gasoline-powered White 3,000 Series tilt-a-cab tractors. These tractors are powered by Mustang engines. The heart of the system is a Model 40 Superior diesel engine fed from a tank on the trailer's belly. The tank of fuel will drive the generators at capacity for 12 hours.

After a generator is hauled to a site requiring temporary power, the tractor is removed and the trailer is left standing on the front landing gears and two rear jacks Lines from the generator are hooked to the transformer on the power lines or at a substation, and the units are ready for action in a matter of minutes.

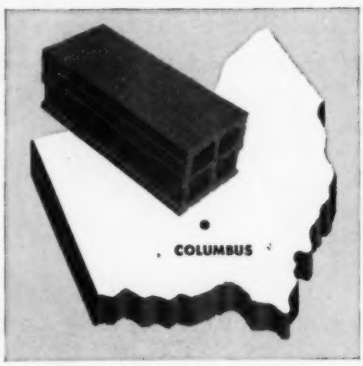
Twin generator units rated at 500 kw each, have already been produced by the WHITE DIESEL ENGINE DIVISION, THE WHITE MOTOR CO., SPRINGFIELD, OHIO. They were shipped to Caracas for use by the Venezuela Development Corp.

Full facts on the mobile generators may be obtained directly from the White Motor Co., or you may use the Post Card on the insert following Page 52. Circle No. 898.

Dresser Takes Over Oil Tool Company

The recent acquisition of the Guiberson Corp., Dallas, Tex., by Dresser Industries, Inc., also of Dallas, is announced by H. N. Mallon, president of

Another NEW
Leopold Installation...



New 48 mgd Columbus, Ohio plant equipped with Leopold Filter Bottoms

For top performance, use Leopold Bottoms. They work better . . . last longer. Write for details.

F. B. LEOPOLD CO., INC.
2413 W. Carson Street, Pittsburgh 4, Pa.

LEADITE
The Pioneer Self-Caulking Material for C. I. Pipe

YOU CAN'T GO WRONG
WITH

The pioneer self-caulking material for cast iron bell and spigot water pipe which, for more than 50 years, has shown water works men how well it makes a good tight joint that improves with age.

THE LEADITE COMPANY
Girard Trust Co. Bldg., Phila. 2, Pa.

No Caulking

Dresser. Guiberson is a leading manufacturer of specialized oil well production and drilling equipment.

Mr. Mallon also announces an increase in Dresser sales of 46% and a 72% increase in net earnings for the third quarter of 1956 as compared with the corresponding period a year ago.

Practical Solution to Downtown Parking

Model of Park-Lex Building in Baltimore, Md., equipped with a Bowser Parking System for parking 516 cars on 12 levels. It employs four mechanical elevators travelling vertically and horizontally. Only a minute is needed to park or claim a vehicle. Located in the downtown shopping district, the garage is considered a boon by municipal officials as well as business men. Bowser Parking Systems, Inc., is located at 112 S. West Second Ave., Des Moines 9, Ia.

Lengthening the Life of Wire Rope

Pointers on lengthening the life of wire rope are offered by the Wickwire Spencer Steel Division, Colorado Fuel and Iron Corp., Buffalo, N. Y. Two suggestions include shifting the rope periodically to distribute wear, and reversing the position of the rope on the drum.

According to Wickwire engineers, wire rope used for hoisting is usually subjected to the most severe wear at two or three critical points along its length. As a result, these spots wear out prematurely and make rope replacement necessary even though the major portion of the rope may still be serviceable.

A practical approach to distribute severe wear over a longer length of rope is to shift the rope during its life. You simply purchase slightly longer rope than required in the beginning so that as the rope is used, a precalculated length can be cut off periodically. This will ad-

KOHLER Electric Plants
provide time-saving, on-the-job electricity!

MODEL 1.5MS, *1500 watts, 115 volt DC. Manual starting. Weight 101 lbs. Handles for carrying. Also 115 volt AC, 130 lbs.*

Kohler Co., Kohler, Wisconsin • Established 1873

Save time with low-cost electricity at the spot where the work is done! Compact, portable model operates chain saws for pruning and for disposing of fallen trees after storms; also operates hedge trimmers, grass shears, carpenters' saws, drills, pipe threaders and cutters.

Other models, 500 watts to 35 KW, for trucks, street repairs, police and fire departments, civil defense units. Also automatic stand-by models to protect hospitals, sewage treatment and filtration plants, communication systems, schools, public buildings, when central station service is cut off. Write for folder M-10

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

HERE ARE SIGNS THAT Crackle WITH AUTHORITY!

NEW
40 PAGE CATALOG

Choose crisp, bright signs that instantly alert the viewer to the prescribed action.

That's a LYLE sign everytime! LYLE signs conform to latest U. S. Standards; they are deeply embossed on durable stock; then carefully finished with high quality baked-on enamel to achieve high visibility.

We've just published a 40-page manual of hundreds of traffic, warning, and street name signs and specifications. Write for your copy.

LYLE SIGNS, INC.
2723 University Avenue, Southeast
Minneapolis 14, Minnesota

Connelly
IRON
SPONGE

DO YOU USE YOUR DIGESTER GAS?

Raw sewer gas contains Hydrogen Sulphide which corrodes engines and other equipment. The protection of such equipment is of paramount importance. In hundreds of plants throughout the country, Connelly Iron Sponge has not only eliminated this costly sulphur damage, but has materially improved purification and lowered operating and maintenance costs.

Connelly Iron Sponge is a product of extra high capacity and exceptional activity. Its cost per 1000 feet of gas is exceptionally low and it can be depended upon for unusually long life and remarkably revivifying properties.

CONNELLY ENGINEERING SERVICE

Connelly Engineers, backed by more than 70 years of experience in gas purification work, are at your service. We will gladly make a thorough analysis of your problems and submit unbiased recommendations without obligation.

CONSULT CONNELLY—TODAY

CONNELLY, Inc. 3170 S. California Ave., Chicago 8, Ill.
Elizabeth, N. J.

AMERICA'S
HEADQUARTERS
FOR
FIRE EQUIPMENT
AND
POLICE EQUIPMENT

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WRITE FOR
NEW CATALOGS

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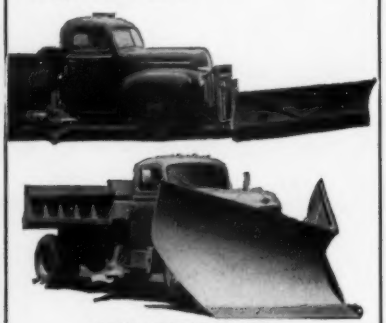
W. S. DARLEY & CO.
ESTABLISHED 1908
CHICAGO 12, ILLINOIS

Unbeatable Combination!

- **Root Underbody Scraper**
- **Root Sno-Plow**

The underbody scraper is efficient, economical, year-round equipment for street, alley, parking lot maintenance, snow and ice removal, etc. Root Sno-Plows for faster, better snow removal. 25 models of one-way tripping and V-type Sno-Plows.



SEND FOR CATALOG

Better Road Machinery Since 1891

ROOT SPRING SCRAPER CO. GET TO THE ROOT OF THE PROBLEM

545 WEST NORTH ST., KALAMAZOO, MICH.

Purchasing

vance the rope, bringing sections not previously subjected to severe service, into those spots subject to the greatest damage. Portions which have been subjected to severe wear will be moved on to an area of lesser wear.

Another method occasionally followed in some operations, which will distribute wear, is to reverse the rope. This involves detaching the rope from the drum and making the drum-end the load-end and vice versa. This, however, will not result in greater service if the point of greatest wear is near the midpoint of the rope. Reversal of the rope under these conditions would not change the position of the point of greatest wear.

Midget 2-Way Portable Radio

A hand carried 2-way portable radio measuring only 10 x 4½ x 9¾ inches and weighing only 11 pounds complete with long-life batteries has just been announced by Industrial Radio Corp.

The new Model H/M Pak-Fone features loud speaker operation, relay operated squelch system, volume control and an on-off indicator light.

A power cable connector is also provided for an external power supply such as the Industrial Radio Model UPC-100 which operates from 6, 12 and 24-volt storage batteries and 117 volts a.c.

The performance of the H/M compares favorably with larger and heavier portables and meets all FCC and FCDA requirements for municipal and industrial portable radio requirements.

For full particulars write to the manufacturer, INDUSTRIAL RADIO CORP., 428 N. PARKSIDE AVE., CHICAGO 44, ILL., or use

the Post Card following Page 52. Circle No. 891.

Electronic Operated Traffic Line Markers

Old traffic lines—including skip-lines—can be re-marked with the aid of a small, compact device weighing less than five pounds. It can be utilized on any type of line-marking machine with either electrically-operated or air-actuated spray guns. The device actuates the spray guns automatically, regardless of the color of the highway or the color or sequence of the lines. It reproduces the lines within ⅛-inch, at any speed from one to 20 miles per hour.

Many accidents have occurred because the operator of the line marker was devoting too much attention to the operation of the spray gun and not enough to his own personal safety. There are also a great many cases in which the operator is forced to compromise on the straightness of the line in his attempt to synchronize skip-lines.

The old dependency of a line-marker operator on the truck driver is no longer needed. It is not necessary to inform the line-marker operator that a "no passing zone" or an intersection is coming. Around one-third more line can be painted in one day with this unit. There is a savings in paint amounting to almost 25% since the paint is on the old line and none on the new surface. This reduces the film thickness required.

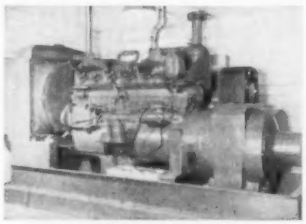
The electronic robot marking system operates equally well at night and under temperature variations from 40° to 170° F. Little replacement is necessary, and the robot has a life expectancy of 10 years. It is easily attached to the line-marking unit in less than 20 minutes.

Additional details on the electronic robot marking system may be obtained from UNIMASCO, INC., 424 WEST REDONDO BEACH BLVD., GARDENA, CALIF. Write directly, or you may use the Post Card on the insert following Page 52. Circle No. 872.

New District Office

The opening of a new district engineering office at Louisville, Ky., is announced by J. E. Buchanan, president of THE ASPHALT INSTITUTE, ASPHALT INSTITUTE BUILDING, UNIVERSITY OF MARYLAND, COLLEGE PARK, MD. The new office will be headed by Ellis G. Williams.

DEPENDABLE POWER PROTECTION



Standby electric plants assure the continuation of vital services when normal power fails. Pictured is a typical example of power protection in a municipal water plant. The Ready-Power standby unit assures an adequate supply of water for fire protection, sanitation, and other essentials during emergencies. A wide range of Ready-Power models up to 100 KW will meet your requirements. Write for information.

READY-POWER ELECTRIC PLANTS

The Ready-Power Company, 11231 Freud Ave., Detroit 14, Michigan
Gas and Diesel Engine Driven Generators and Air Conditioning Units; Gas and Diesel Electric Power Units for Industrial Trucks

FROM THE WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS

Let 1 instrument do all your work...

THE *Dualtronic* MODEL LC-5

Here is the Instrument for which Municipalities have been looking... ONE Instrument that locates Pipes, Leaks and Valves, yet costs no more. Model LC-5 not only saves you money but does the job accurately and dependably. Ruggedly constructed. Compact. Lightweight. Simple, one man operation. Model LC-5 is fully guaranteed.

plus these BIG features:

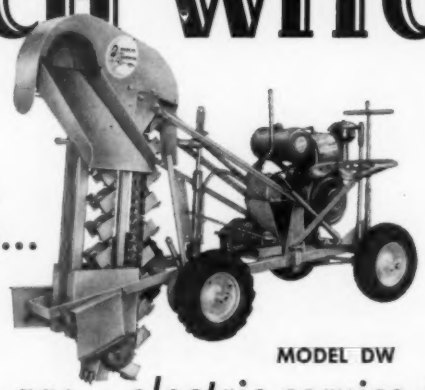
1. Use as Pipe Locator, Leak Detector, Valve Locator.
2. Pin-Point Detection.
3. Automatic on-off and power switching.
4. Crystal microphone.

The GOLDAK *Company*
Leading Electronic Manufacturers
Since 1933

1544 W. Glenoaks Blvd.
Glendale 1, Calif.

WRITE FOR COMPLETE BROCHURE

DITCH WITCH



ECONOMICAL TRENCHING...

MODEL DW

for water...gas...electric service lines!

City governments find DITCH WITCH one-man, light weight trenchers dig faster, better, cheaper than 10 men—less expensively than contracting—and they are always available. Often pay for themselves on the first job. Low initial cost, low maintenance. Three models: 2-in. to 12-in. straight, curved and cornered trenches to 36-in. depth. Hard-tooth, self-cleaning bucket lines proved in all soils, even rocky and heavy clay.

Sold by dealers throughout the U. S. Try DITCH WITCH on your next trenching problem.

NEW Model B "Baby" will dig 2-in. wide to 18-in. deep. Rugged, self-propelled, perfect for utilities service lines.

DITCH WITCH

THE **CHARLES** MACHINE WORKS

617 B St. PHONE 404

PERRY, OKLA.

A Practical Sewage Plant for the Small Community -The SPIRAGESTER

Simple Construction

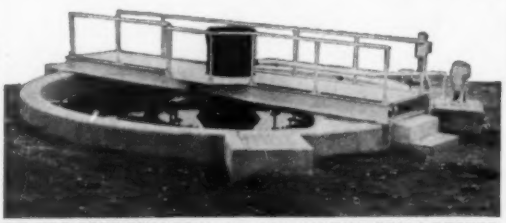
Flexible Operation

Efficient Performance

The Lakeside Spiragester gives the small community a sewage treatment plant combining the best in engineering with bargain prices. It provides a self-contained plant that your community can afford.

- **It is simple**—It places Lakeside's Spiraflo Clarifier over a digestion tank. It combines the simplicity of an Imhoff tank with flexibility and control that no Imhoff tank has. Note the drawing below.
- **It is engineeringly sound**—Operating on proved principles of clarification and separate sludge digestion. You aren't risking your community reputation with an untried experiment.
- **It is easy to operate**—There are no intricate expensive mechanisms to get out of order.
- **And it is farsighted**—When your community grows, as it surely will, and you have to build a larger plant, you can put a floating cover on the Spiragester and turn it into a digestion tank, and then use our Spiraflo Clarifiers for separate primary settling.

Get the full story of the Spiragester by writing for additional information. If you have a larger plant that needs improvement, our engineering department will be glad to help you without obligation. Just drop us a note:



WRITE FOR FREE BULLETIN NO. 135 ON THE SPIRAGESTER

LAKESIDE ENGINEERING CORPORATION

222 W. Adams St. Chicago 6, Ill.

Technique Developed For Studying Local Employment Trends

A NEW APPROACH to the study of future employment trends in cities and metropolitan areas has been developed, according to Herbert W. Robinson, president of the Council for Economic and Industry Research, Inc. The new technique has been used for the first time (to Mr. Robinson's knowledge) in preparing an economic base study for the Washington D. C. metropolitan region. The study, which has been completed and submitted jointly to the National Capital Planning Commission and the National Capital Regional Planning Council, provides future population and employment estimates for the Washington area. The estimates are being used in a study of a possible mass transportation system for the capital region.

Job Categories

In estimating future employment totals, the new technique is similar to previously developed techniques in that it separates all jobs in the region into two categories. The first embraces employment in industries or organizations that provide services to people who live outside the region. This category covers seven employment groups, including all federal government jobs in the Washington area, including military personnel and all jobs connected with the servicing of tourists as well as persons attending conventions and conferences in the Washington area. It also includes jobs connected with foreign embassies and international organizations. Thus the first category comprises the portion of Washington's employment whose total rises and falls in accordance with national or international influences but not in accordance with purely local factors. Estimates of future levels of employment in these groups are based on assumptions relating to national and international economic trends.

The second category of jobs embraces all employment in industries and organizations that provide services to the first category of jobs and to workers and the families of the workers who fill them. This category includes employment in such services as retail and wholesale trade, entertainment, local transportation, professional services, etc., as well as in the production of equipment and food needed by the residents. The second category of jobs thus com-

prises the portion of Washington's employment whose total is influenced by the level of employment in the first category.

It is at this point that the new technique begins to differ from previous methods of future employment estimation. For, the authors recognize that many services and products needed by the local population are imported from outside the Washington area. If all the required services and products were produced locally then the Washington area would have achieved a maximum industrialization.

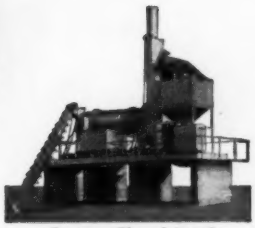
Consequently, in estimating future employment levels in the second category of jobs, two guiding factors are considered: (1) changes in the level of employment in the first category of jobs and (2) changes in the degree of industrialization in the second category.

In analyzing the possibilities of greater industrialization in the future, the surveyors consider such limiting factors as industrial sites, markets, distribution facilities, location of production materials, industrial fuel, water, power, transportation facilities, labor, living conditions, tax structure, laws and regulations, and climate. Out of this analysis came a list of potential industries that could feasibly exist in the Washington region to serve the mass market of its rising population. If all of these industries were to locate in the Washington area in the future, the region would achieve its maximum feasible industrialization. The survey shows that at present the region has attained only about 15% of this maximum.

Final Estimates

Thus the final future employment estimates consist of (1) estimates in which it is assumed that there will be no future changes in the degree of industrialization of the Washington region, and (2) estimates assuming various different degrees of achievement of maximum feasible industrialization. The employment levels thus estimated are then translated into population levels and the results show that if the first assumption should prevail the Washington region will have 2.8 million by 1980 compared to the 1.9 million it had in 1955. If maximum industrialization is achieved by 1980 then the population should reach 4.8 million in that year. The study believes it most likely that the degree of industrialization achieved will be nearer to 50% of the maximum, yielding a 1980 population of nearly three and a half million.

White



Stationary Plants L-12 and L-25, 15-30 ton capacity.

PORTABLE ASPHALT PLANT

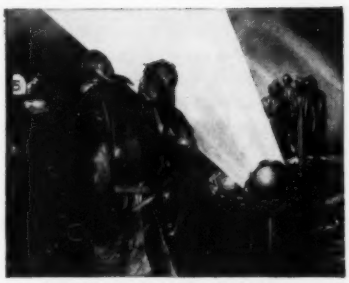
MODEL L-8, 10-15 TON CAPACITY

A *COMPLETE* ASPHALT PLANT ON ONE CHASSIS . . . DRYER, MIXER, HEATING KETTLE. Low in cost, small enough to tow, BIG enough to produce HOT mix, (or any other bituminous mix) for driveways, parking lots, street maintenance, etc. Equipped with 50 HP LeRoi engine, air operated gates for *one* man control, divided compartment, reciprocating feeder for proportioning aggregate. Available as stationary plant with 30 HP electric motor.

Write for catalog and name of nearest dealer.

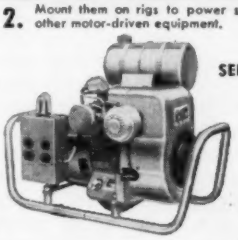
White MANUFACTURING COMPANY

ELKHART 1, INDIANA



1. Carry them by hand right up to the fire...operate power tools and lights.

2. Mount them on rigs to power searchlights and other motor-driven equipment.



SERIES 105AK
1,500 watts;
125 pounds

ONAN Electric Plants help you fight fires all 3 ways!

ONAN portable models combine light weight with 4-cycle quick starting, long life and all-around dependability. Quick release bases are available on many models permitting instant removal of the units from fire rigs. Onan Standby Plants from 1,000 to 50,000 watts assure electric power for fire stations, headquarters departments and radio communications. Air-cooled models can be equipped with Onan's exclusive Vacu-Flo cooling system allowing installation in closed rooms or compartments.

3. EMERGENCY STANDBY POWER
Installed in the fire station or department, they supply all electricity required when power is interrupted.

Write for Folder on fire department models

D. W. ONAN & SONS INC.

Onan ELECTRIC PLANTS

2564 Univ. Ave. S. E., Minneapolis 14, Minn.

There's more to this

...than meets the eye

Many folks confuse polecats with ordinary cats. Check them in action, however . . . it's easy to tell the difference.

Same way with Cans. When you see WITT alongside other makes, they may even LOOK ALIKE—but don't be confused. WITT outlast 3 to 5 ordinary containers!

WITT Cans and Pails are made of heavy-gauge steel, reinforced by solid steel beaded bands top and bottom . . . have deep, rolling corrugations and tight-fitting lids . . . are strongly constructed to **stay in shape.**

Be sure of satisfaction—not just for days or months—but for years. Demand WITT CANS.

WITT Cans
"Originators of the Corrugated Can"
THE WITT CORNICE COMPANY
2139 Winchell Ave., Cincinnati 14, Ohio

Rockville's young men of high-school age show willingness and hustle in the community's summer job program.

Teen Age City Crews Prove Worth

By JOHN H. MARKLAND
City Manager
Rockville, Md.

ROCKVILLE, MD., last summer, took issue with industry's policy of reluctance in hiring teenagers by instituting a program of putting boys of this age to work during the summer months. The city organized them into work gangs and assigned them to various tasks such as correcting soil erosion in play areas, clearing land for new recreation sites, and various other clean-up jobs in the city parks. The city places them on its regular payroll, paying them $1 per hour.

The program has met with enthusiastic support, not only from parents and school authorities, but from operating heads of the park department as well. It is more than a method of releasing some of the excess energy of today's youth; it is of real, constructive benefit to the city since it frees more experienced men for work demanding higher skills.

Aims at Further Development

The city plans to develop this teenage task force into a program that will have year-to-year continuity, thus providing a dependable, semi-skilled "fill-in" force. Youngsters in the city are as enthusiastic as the rest of Rockville citizens. The city personnel office was overwhelmed with applications to join last summer's "Teenagers' Work Force."

Massachusetts Towns Get Federal Planning Aid

SEVEN small Massachusetts municipalities will soon receive $25,250 in federal aid from the federal Urban Renewal Administration to complete the development of local master plans. They are Dartmouth, Hingham, Hull, Scituate, Walpole, Weston, and Woburn. The grant has been provided through the Administration's Urban Planning Assistance program which makes federal planning funds available to communities of less than 25,000 persons. The announcement of the new grant brings to 18 the number of Massachusetts municipalities participating in the program. Similar planning grants totaling $50,500 were awarded earlier to the other 11 communities that are participating.

The latest avail of funds will be used by the seven designated municipalities for land use surveys, major street and highway plans, and capital improvement programs. Zoning ordinances and subdivision regulations will also be developed under the program.

Estimated cost of the entire planning program is $50,500, one-half of which will be met by the federal grant. The other half will be met from contributions of the municipalities. The Massachusetts Department of Commerce will supervise the program with its own funds.

About People

When J. Arthur Fitzenz takes over as manager of domestic sales for the **Austin-Western Works, Construction Equipment Division, Baldwin-Lima-Hamilton Corp.,** Aurora, Ill., he will be assisted by A. Merrill Smith, according to a recent announcement. Mr. Fitzenz has served Austin-Western for 22 years, more recently as central district manager and assistant manager. Mr. Smith was formerly district manager for the company in Texas and the Southeast.

J. A. Fitzenz **A. M. Smith**

Charles S. Northen, vice-president of **United States Pipe and Foundry Co.,** Birmingham, Ala., announces the appointment of John Madden, Jr., as sales agent in charge of the company's New York office. Mr. Madden succeeds George T. Overholt, who retired early last month.

Scheduled to manage the new Moline (Ill.) branch sales office of the **De Laval Steam Turbine Co.,** is H. A. Besocke, a former member of the firm's Chicago district office. Main offices of De Laval are located in Trenton, N. J.

Three new district representatives have been appointed by the **Koehring Co.,** Milwaukee 16, Wis. H. R. Powers will cover the States of Washington, Oregon, Idaho and Montana; C. M. Andresen will operate in Texas, New Mexico, Louisiana, Oklahoma and Mexico; and L. J. Meyers will represent Koehring in Illinois, Indiana, Kentucky, Tennessee, Missouri and Mississippi. These men will also represent two Koehring subsidiaries, Parsons Co. and Kwik-Mix Co.

Two well-known former New York City officials, Albert Pleydell, Commis-

CLT

Tax Equalization Appraisals

Fifteen years of unduplicated experience of producing highest quality appraisals for tax equalization purposes.

Client list and brochure upon request.

COLE-LAYER-TRUMBLE COMPANY

11 West Monument Ave. • Dayton 2, Ohio

PROVABLE APPRAISALS SINCE 1938

DISTRICT OFFICES:

172 Clinton Avenue, New Rochelle, New York
207 Investment Building, Pittsburgh, Pennsylvania
123 N. Poplar Street, Charlotte, North Carolina
415 Congress Street, Portland, Maine
84 Peachtree Street, N.W., Atlanta, Georgia

The Brighton

Atlantic City, N. J.

One of America's Finest Hotels

•

You will enjoy this friendly hotel right on the Boardwalk in the center of all activities

Delicious Food served in an atmosphere of Charm and Hospitality

Modified American and European Plans

•

COCKTAIL LOUNGE and BAR with Nightly Entertainment

•

The Home of the Famous Brighton Punch
Alfred A. Taxin, President

City Engineer wanted

for modern growing industrial city of 6,000. Prefer college graduate with some experience.

New situation with excellent salary. Send replies giving details of education and experience to:

Box 411
THE AMERICAN CITY
470 Fourth Avenue
New York 16, N. Y.

sioner of Purchase 1941-1947, and William Reid, who served in tax work, transportation and as deputy mayor, have joined **Managers Service Association, Inc.,** a new management firm at 15 Park Row, New York City. They offer services to municipalities in the fields of purchasing, administration, rapid transit, parking, inventory control, and tax collecting systems.

Norbert Weber

As new European Manager for the **Fisher & Porter Co.,** Hatboro, Pa., Norbert Weber will coordinate engineering, production and sales for the company's four European manufacturing affiliates and nine engineering representatives. Mr. Weber will make his headquarters at Fisher-Van Winkel, N. V., The Hague, Netherlands.

From Charles F. Honeywell, administrator of the Business and Defense Services Administration, U. S. Department of Commerce, comes news of the appointment of Richard V. Ford as director of the Administration's Water and Sewerage Industry and Utilities Division. Mr. Ford is vice-president and export manager of the **Ford Meter Box Co.,** Wabash, Ind.

W. A. Rundquist has been elected vice-president of sales promotion for **Pioneer Engineering Works, Inc.,** Minneapolis 13, Minn., a subsidiary of Poor & Co. The new vice-president is also a director of advertising and public relations for the parent company.

Newest addition to the field engineering staff of the **Calcium Chloride Institute,** Washington, D. C., is Gordon K. Owen, former engineering supervisor and estimator with Thompson-King-Tate, Inc. Mr. Owen will provide engineering service for all calcium chloride users in the Indiana, Ohio, Kentucky and Tennessee area.

Robert F. Lay, vice-president and general sales manager of the **Cooper-Bessemer Corp.,** Mt. Vernon, Ohio, announces the promotion of R. F. Bartlett to manager of the company's Dallas branch.

Succeeding Maurice Maskrey, recently resigned president of the **Clay Sewer Pipe Association,** Columbus, Ohio, is Paul R. Rutherford, former executive secretary of the Building Material Institute, of Akron.

Carl C. Hoffman, Jr. has been appointed a special representative for the **International Business Machines Corp.,** New York City. Operating out of the company's Dallas (Tex.) office, he will coordinate sales activities and the planning of applications of IBM equipment to meet the needs of customers in the state and local government field. He will also conduct classes for customer personnel and seminars for IBM sales representatives.

V. B. Phillips

In his new position as assistant general sales manager of the **Recordak Corp.,** 415 Madison Ave., New York, N. Y., Van B. Phillips will coordinate sales of the 35 Recordak branches located in major cities throughout the country. Mr. Phillips last served as Mid-West regional manager for Recordak, operating out of the company's Chicago office.

Walter H. Feldmann, executive vice-president of the **Worthington Corp.,** Harrison, N. J., has been elected a member of the board of directors, according to Hobart C. Ramsey, chairman of the board. Mr. Feldmann has been associated with Worthington since 1944. A new branch manager, J. R. Matullo, has been appointed for Worthington's New Jersey sales office. At the Worthington Gamon Meter Division, W. L. Barngrover has been named to represent the sale of meters in parts of Oklahoma and Kansas. Mr. Barngrover was formerly superintendent of the Water and Sewer Department for the City of Shawnee, Okla.

In addition to his duties as advertising manager of the **Enterprise Engine Division** of **General Metals Corp.,** Michael E. Conway will take over as public relations director for General Metals. Main offices of the corporation are located at 220 Bush St., San Francisco, Calif.

M. E. Conway

Newest addition to the staff of **De Leuw, Cather & Co.,** consulting engineers, 150 N. Wacker Dr., Chicago 6, Ill., is Jack E. Leisch, formerly chief of the design development section, Bureau of Public Roads, U. S. Department of Commerce. Mr. Leisch is the principal author in the development of "A Policy on Geometric Design of Rural Highways" and other AASHO publications.

A new president, Alva W. Phelps, and a new executive vice-president, Carl L. Hecker, are announced by **The Oliver Corp.,** 400 W. Madison St., Chicago 6, Ill. Mr. Phelps is also chairman of the company's board of directors.

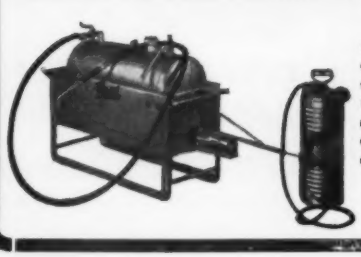
Harry E. Douglass, Jr. has been assigned to the Chicago sales office of the **Chicago Bridge & Iron Co.,** 332 S. Michigan Ave., Chicago 4, Ill. Mr. Douglass joined the engineering department of the firm's Birmingham (Ala.) plant in 1954.

As head of the S & S Sales Co., Niagara Falls, N. Y., E. D. Shippy will have charge of the sales and servicing of fire apparatus made by the **Four Wheel Drive Auto Co.,** of Clintonville, Wis. Mr. Shippy will represent the company in western New York State.

WINTER CONSTRUCTION HEATERS

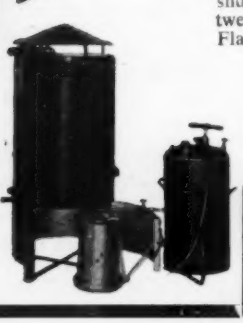
Aeroil

For almost four decades, AEROIL WINTER CONSTRUCTION HEATERS have helped the contractor prevent costly delays, tie-ups and shut-downs. Now you can choose between kerosene burners with their 2000°F Flame, or Liquefied Petroleum Gas on most AEROIL EQUIPMENT. Write for FREE Bulletins on WINTER HEATING EQUIPMENT and also Asphalt Kettles, Tool Heaters, Cut-Back Sprayers and scores of other Contractors Needs. Write Dept. A.C.



- Salamanders
- Water Heaters
- Thawing Torches
- Steam Thawers
- Concrete Heaters
- Ground Thawers
- Steam Cleaners

Send for Free Bulletins



Aeroil PRODUCTS CO., Inc.
Wesley St.
So. Hackensack, N. J.
4648 S. Western Av. Chicago 9.
3217 Union Pacific Av. Los Angeles 23.

"Here's why our city installed its sixth BJ Submersible"

Says L. E. Cunningham, Mayor of this progressive midwestern city

WELCOME TO BELVIDERE ILLINOIS

CITY OF INDUSTRIAL ADVANTAGES

Facts about Belvidere, Illinois

A friendly city of 10,000, Belvidere is located 75 miles northwest of Chicago. Its industrial advantages include abundance of water, skilled labor pool, good plant sites, low tax and utility rates, and excellent educational and recreational facilities. It is served by the Chicago and Northwestern Railroad and 26 major truck lines.

Facts about the BJ Submersible

The BJ Submersible operates completely submerged in water at any depth. This sealed, submerged unit needs no pump house and is unaffected by weather extremes, floods or dust. The BJ Submersible requires no field adjustments. Normally gives more than 20 thousand pumping hours before service is required. Silent and vibrationless.

"A dependable, protected water supply system is vital to the future growth of both our residential and industrial areas.

In the past our wells were pumped by surface motor deepwell turbines requiring pump house protection and special maintenance. In 1951 Wayne Richardson, our Waterworks Superintendent, working with R. Anderson, Engineering, replaced an old deepwell turbine with a modern Byron Jackson Submersible.

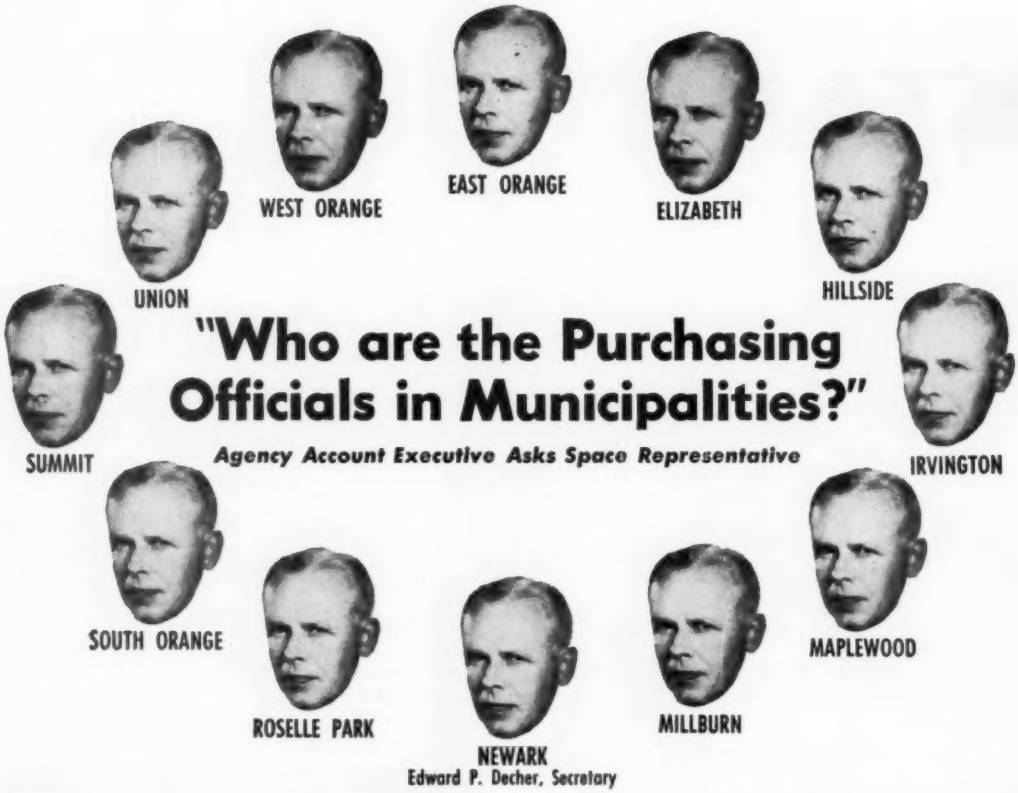
Our experience with this completely submerged pump was so satisfactory that we converted all our wells to submersible operation, having just completed the installation of the sixth unit. The combined capacity of all these units is now 5 MGD with storage facilities for 1,700,000 gallons.

The people of Belvidere are now assured a pure water supply that is completely safe from flood or other disaster conditions. And our people also benefit as taxpayers since routine maintenance is eliminated and no costly, space-consuming surface structures are necessary. Byron Jackson Submersibles have provided us with the answer to all our pumping problems."

SINCE **BJ** 1872

Byron Jackson

Division of Borg-Warner Corporation
P. O. Box 2017A, Terminal Annex • Los Angeles 54, California



"Who are the Purchasing Officials in Municipalities?"

Agency Account Executive Asks Space Representative

REPRESENTATIVE: Let me start the answer with this picture.

ACCOUNT EXECUTIVE: *Why the same man for twelve different cities? And how does this relate to my question?*

REP.: In metropolitan areas cities sometimes form a municipal partnership to solve common problems. In this case, Newark and 11 adjacent New Jersey municipalities established a joint municipal enterprise to build and maintain 56 miles of main trunk sewer and a big treatment plant. The key administrator is an engineer named Edward P. Decher, called Secretary, and he does the purchasing.

A.E.: *Then your audited circulation statement shows only one copy for the sewage treatment function in 12 cities?*

REP.: Right! — And remember — Decher buys other equipment besides sewage treatment products.

A.E.: *Like what?*

REP.: Street and sidewalk repair materials, motor controls, safety equipment, and power lawn mowers. — But to get back to your original question —

Besides these municipal partnerships, there are three main groups that influence purchasing. One is the department heads — in your client's case, sewage works officials. They use such titles as sewage treatment superintendent, sewage plant operator, and superintendent of sanitation. However, in many cases the city engineer or water works superintendent has the added responsibility of administering the sewage works facilities.

A.E.: *OK, that's one group. Who are the others?*

REP.: The second group is composed of consulting engineers, whose professional advice carries great weight on sewage treatment and water works purchases.

The third group includes city managers, mayors, and commissioners. These administrative officials have to approve the purchasing recommendations of the other two groups.

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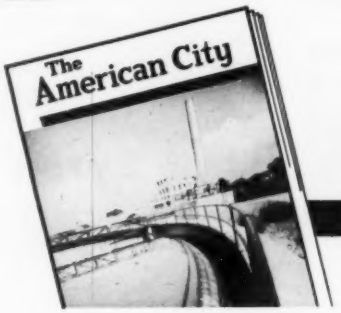

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The HT4 is shown here loading windrowed snow shortly after a 21-inch fall buried the city. The No. 12 Motor Grader is working in the background.

The City of Kellogg, Idaho, was well prepared for the big storms of last winter. A CAT* HT4 Traxcavator teamed up with a No. 12 Motor Grader to clear the streets quickly, even after heavy snowfalls.

The No. 12 plowed out first, piling the snow in windrows. Then the HT4 loaded it into trucks, maintaining a steady pace of 15 truck loads per hour. Tom Olson, Kellogg's Street Superintendent, likes the way the Traxcavator works, particularly the down pressure on the bucket that digs in and fills.

This machine is more than just a winter tool. It's in use the year around, loading gravel trucks and doing other road work.

And now Caterpillar offers the No. 933 Traxcavator, designed as a unit and balanced for its job. It achieves even bigger production at lower cost. Among its features are 40-degree bucket tilt-back at ground level, preventing spillage; fast-acting hydraulic lift with high reach; and the oil-type clutch that lasts up to 1500 hours without adjustment, and practically eliminates clutch down time. Back of the sturdy one-yard bucket are ample power, fast maneuverability and the firm traction of hardened steel, triple grouser tracks.

This year be ready for winter snow. See your Caterpillar Dealer and get the full facts about this hard-working, money-saving No. 933 Traxcavator and others in the Traxcavator line. Their long work life is protected by the reliable service and Caterpillar parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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THE PROOF of parking meter efficiency comes after the first couple of years. Mark-Time proves itself in revenue to the municipality, solution of traffic problems, continuous operation and economical maintenance . . . backed by Mark-Time's company guarantee of quality and service.

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This 25-ton truck crane travels without permit

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1 **Every truck crane user** has the problem of meeting highway weight limits, whether he drives over superhighways, or country roads.

2 **To prepare *this* crane** (a *new* MICHIGAN Model T-24) for weighing, all that had to be done was remove counterweight and rear outrigger under power, then un-pin boom.

3 **Rear tandem axle weighs** in at 32,000 lbs. . . . front axle, 9,500 lbs. Total gross, 41,500 lbs., is well within highway weight limits.

4 **After noting overall width** of under 8 feet, the "go" signal is flashed (left) and the MICHIGAN Model T-24 truck crane moves off the scale and is on its way without delay.

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